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*Urban Land Prices : Policy Issues and Options**

E.F.N. RIBEIRO AND VINAY D. LALL

THE UNPRECEDENTED expansion of urban population is causing an exceptionally rapid increase in the demand for urban land. The situation on the urban land front might assume alarming dimensions in the next two decades if on the one hand, appropriate land policies are not implemented and, on the other, the policy of the Government of India to provide a shelter to each household in the country by the turn of the present century is taken up seriously. Land location, being specific, urban land plots cannot be reproduced. The general policy that has been adopted to increase the supply of land has been, in India as well as elsewhere, to change land use patterns, extend urban centres to the peripheral areas and increase the density of activities. There is, however, a growing feeling that these experiments have not been able to arrest the ever-widening supply demand gap for urban land. Urban land prices have been rising in such proportions and to such levels that even as far back as in 1976, the United Nations Habitat Conference identified, the sharply rising urban land prices 'as the most serious' of the many problems facing developing countries in the urbanisation process. The situation in India has not shown any improvement in recent years. The Government of India's concern is reflected in Point 10(c) of its 20-Point Programme, which relates to controlling the increase in urban land prices and augmenting the supply of land for social housing programmes.

CONCEPTS AND ISSUES

It is being increasingly felt that regulatory measures like the urban land ceiling and rent control legislations, fiscal measures and the generation of unofficial incomes in the country are some of the other

*Paper originally prepared for the workshop on "Urban Land Prices", organised by the National Institute of Public Finance and Policy, and the Town and Country Planning Organization, New Delhi, March 19, 1985.

factors that have contributed towards the emergence of the phenomenon spiralling urban prices. However, data on a time-series basis on urban land markets, prices and transaction costs are grossly inadequate. The state governments, to whom the responsibility is ultimately bestowed, to bring about some supply-demand parity on the urban land front, have made some experiments, the most common being the virtual freezing of the supply of land or the nationalisation of the land market and imposition of statutory ceiling on land holdings: yet, the problem remains largely unresolved.

Seventh Plan Perspective

In this perspective, and in the context of the ensuing Seventh Plan, in which special emphasis is to be placed on the qualitative aspects of human living (and housing is a natural component of such a programme), the issues relating to land supply and pricing become particularly relevant. The success of affordable housing programmes would substantially depend upon the availability of land at a reasonable cost. Hence, this Workshop is being organised.

The objective of this Paper is not to present an original piece of research, work but to assimilate together at one place, the relevant issues of concern to urban planners, economists, financiers and policy makers, and to outline some policy options so that positive re-thinking on strategies to resolve the vexing problem can be discussed and possibly identified. The data base of the Paper is the recently published survey on urban land prices for 57 towns that has been brought out by the Town and Country Planning Organisation (TCPO), Government of India.

The Paper is presented in four parts. In this introductory part, some basic conceptual issues are briefly discussed so that the subsequent discussions are taken up in the appropriate perspective. Part II, based on the TCPO's recent study, examines the present urban land prices market, and Part III identifies some of the important factors that can explain, to a large extent, the present urban land price scenario. A few policy options and issues that may be taken up for discussions at this Workshop are outlined in the concluding part of the Paper.

Conceptual Issues

Discussion on the phenomenon of urban land prices is often focused on two terms, namely, 'very high' and very rapidly 'rising' urban land prices. These terms are relative to the reference base land prices and other prices and they are not necessarily inter-related. A very rapidly rising price situation need not suggest a high price level and *vice versa*. Further, within a town/city, the prices may rise

'rapidly' or attain a 'high' level in some locations but the 'average' plot price level may be neither high nor rapidly rising. It is equally important to note that a 'rapidly' rising situation may suggest a relatively low level of land prices in the past. Clearly an horizontal expansion of the town/city will bring in 'low-priced' land on the periphery, which will modify the average increase in price within the town/city. Increased density would also reduce the land price per resident, even though the total plot price may be rising rapidly or may attain a high level. It would be useful to share state-level experiences on these twin phenomena of 'high' and 'rapidly rising' urban prices and to see in what context these terms are being used, and also should be used to represent the urban land prices situation.

A second issue is the determination of the appropriate standard of comparison of urban land prices. The choice is generally made between the general price level and the price of unserviced and non-urban land. Sometimes the urban land prices are compared with the income or wealth of the poor and also the rate of return in alternative investment outlets. The general price level, the commonly-used base, cannot be considered as the best comparative measure, as land is basically a price inelastic commodity and a capital assets having a location specific characteristic and value. It would be more appropriate to have, as the comparative base, the prices of alternative assets in which the individual can place his investments. In such a situation, the rapid rise in urban land prices relating to the price of other assets would reflect the fact that land yields a lower current income than other assets. "The more rapid price appreciation, relative to other assets, thus makes up for the lower income flow"¹. The third base, that has been used at times, is the non-urban land. While comparison of urban and non-urban (*i.e.*, agricultural land) prices is useful, it has limited validity as the former also represents the value of services that may not be available to the same extent in the case of non-urban land. Even if the urban land is unserviced, the possibility of the services being provided in the near future is greater than in the case of the non-urban land. Also, pressure on developed land is more in large cities than in medium and smaller settlements.²

¹Alan A. Walters, "The Value of Land" in Dunderley, H.B., (ed.) *Urban Land Policy: Issues and Opportunities*, 1983, p. 41. This book contains a series of informative and thought-provoking papers.

²Available data on gross densities establish clearly that the pressure on developed land is more acute in larger cities than in medium and small urban settlements. Thus, for example, gross density is 85 persons per hectare in metropolitan cities 40 persons/hectare for cities with 1-5 lakh population, 43 persons/hectare for cities with 5-10 lakh population, 32 persons/hectare for towns with 50,000—one lakh population and 21 persons/hectare for towns of 20,000-50,000 population.

The seriousness of the urban land problem can be observed from available data on urban land use pattern in settlements with varying sizes of population. As can be seen from Table 1, the proportion of developed area available for residential purposes decreases with increase in the size of the urban settlement. What is particularly relevant from the point of view of formulating land policies for the purpose, is the large proportion of 'vacant' developed area, especially in the metropolises.

TABLE 1 LAND USE PATTERN IN DIFFERENT SIZED URBAN SETTLEMENTS

(Area in '000 hectares)

	Population Range		
	Million Plus	5-10 lakh	1-5 lakh
1. Total area	63.3 (100.0)	53.3 (100.0)	355.5 (100.0)
2. Underdeveloped and agricultural area	23.1 (36.5)	26.7 (48.3)	167.2 (47.0)
3. Developed area	40.2 (63.5)	28.6 (51.7)	188.3 (53.0)
4. Per cent in share of item 3			
a. Residential	28.4	33.2	40.3
b. Commercial	1.8	3.2	2.4
c. Industrial	5.1	14.0	5.4
d. Parks and Playgrounds	4.2	3.4	3.5
e. Public and semi-public	8.6	15.0	12.8
f. Roads and streets	7.5	10.3	11.4
g. Vacant land	25.4	10.7	12.7
h. Other uses	19.0	10.2	11.5

NOTE: Figures in parentheses are per cent of item 1.

A final question that is relevant for our discussion is: "what urban land prices should we consider?" Should we take as the base one 'guessed' price of occasional private dealings in land, the 'fair market' price determined by the government when it acquires land, the 'auction' price when the government agencies periodically release land in the open market, the 'administered' price when the government provides land for 'institutional' purposes and to 'cooperative housing societies', the 'registered' price as in official documents or the 'income tax' and the 'property tax' valuation? It would be useful to develop some conceptual as well as operational norm/s on urban land price fixation.

THE URBAN LAND PRICES SCENARIO

Data Base

The TCPO study covers 57 towns. The data relate to two years for 18 metros/capital cities and 18 other medium-sized towns and to one year in the case of 21 other medium-sized towns (Tables 2, 3 and 4

TABLE 2 AVAILABILITY OF URBAN LAND FOR DIFFERENT USES (1931)

Name of the Metropolitan city	Total Area	Developed land	Residential	Commercial	Industrial	Parks and play-ground	Public/semi-public uses	Roads/ Streets	(Hectare/Per 1000 persons)	
									Vacant land	Others
1. Bombay	0.82	0.76	0.23	0.01	0.10	0.03	0.06	0.12	—	0.17
2. Calcutta	6.13	3.15	1.68	0.08	0.40	0.07	0.16	0.50	—	0.24
3. Hyderabad	7.68	6.31	1.06	0.05	0.12	0.14	0.56	0.51	3.02	0.82
4. Bangalore	4.87	4.47	2.01	0.13	0.42	0.34	0.36	0.18	—	0.99
5. Kanpur	17.56	6.64	1.67	0.11	0.29	0.17	0.57	0.69	1.52	1.59
6. Nagpur	18.19	6.78	1.67	0.26	2.19	0.25	0.84	0.36	0.08	1.12
7. Lucknow	7.99	5.22	1.54	0.09	0.17	0.20	0.87	0.71	1.38	0.25
8. Jaipur	5.80	5.39	2.01	0.13	0.28	0.12	0.75	0.69	0.57	0.80
9. Ahmedabad	6.44	4.00	2.55	0.16	0.69	—	0.59	0.31	0.47	3.15
10. Delhi	2.79	2.70	0.57	0.06	0.04	0.14	0.92	0.51	0.48	—

Source: Land and Land Use Pattern in the Indian Metropolises: A Survey of Selected Metropolitan Centres, TCPO, 1982.

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TABLE 1 LAND USE PATTERN IN DIFFERENT SIZED URBAN SETTLEMENTS

(Area in '000 hectares)

	Population Range		
	Million Plus	5-10 lakh	1-5 lakh
1. Total area	63.3 (100.0)	53.3 (100.0)	355.5 (100.0)
2. Underdeveloped and agricultural area	23.1 (36.5)	26.7 (48.3)	167.2 (47.0)
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TABLE 2 AVAILABILITY OF URBAN LAND FOR DIFFERENT USES (1951)

Name of the Metropolitan city	Total Area	Developed land	Residential	Commercial	Industrial	Parks and play-ground	Public/semi-public uses	(Hectare/Per 1000 persons)		
								Roads/ Streets	Vacant land	Others
1. Bombay	0.82	0.76	0.23	0.01	0.10	0.03	0.06	0.12	—	0.17
2. Calcutta	6.13	3.15	1.68	0.08	0.40	0.07	0.16	0.50	—	0.24
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4. Bangalore	4.87	4.47	2.01	0.13	0.42	0.34	0.36	0.18	—	0.99
5. Kanpur	17.56	6.64	1.67	0.11	0.29	0.17	0.57	0.69	1.52	1.59
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10. Delhi	2.79	2.70	0.57	0.06	0.04	0.14	0.92	0.51	0.48	—

Source: Land and Land Use Pattern in the Indian Metropolises: A Survey of Selected Metropolitan Centres, TCPO, 1982.

TABLE 3 INTERCITY VARIATION IN LAND PRICES OF SELECTED CITIES/TOWNS (TWO YEAR DATA)

(Land value = Rs. per sq. m.)

Sl. No.	Name of the city/ Town and State	Population 1981 (in lakhs)	Reference year	Minimum Price		Per cent annual increase	Maximum Price		Per cent annual increase
				I year	II year		I year	II year	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Calcutta	91.94	1980-82	25	179	308.0	983	2243	64.1
2.	Bombay	82.43	1980-83	60	150	50.0	11450	15000	10.3
3.	Delhi	57.29	1980-82	150	198	16.0	1500	4500	100.00
4.	Madras	42.89	1971-81	1	4	30.0	336	1345	30.0
5.	Bangalore	26.29	1980-82	131	239	41.4	837	1076	14.3
6.	Ahmedabad	25.48	1981-83	3	12	100.0	1250	800	-12.0
7.	Hyderabad	25.46	1975-83	12	18	6.2	179	238	4.1
8.	Pune	16.86	1980-83	5	30	166.7	1000	1800	26.7
9.	Lucknow	10.08	1980-83	65	65	0	65	80	7.7
10.	Patna	9.19	1980-83	40	80	33.3	640	1000	18.7
11.	Bhopal	6.71	1980-83	21	54	52.4	32	65	34.4
12.	Trivandrum	5.20	1975-81	12	124	155.0	247	741	33.3
13.	Imphal	1.57	1980-82	4	3	-12.5	172	413	69.8
14.	Panaji	0.77	1978-81	20	10	-16.7	180	172	-1.4
15.	Jaipur	10.15	---	105	---	---	117	---	---

	Year	1982-83	14	—	—	148	—	—	—
16. Bhubneshwar	2.19	1982-83	14	—	—	148	—	—	—
17. Simla	0.71	1982-83	40	—	—	600	—	—	—
18. Kohima	0.34	—	45	—	—	90	—	—	—
19. Secunderabad	1.36	1975-83	18	89	49.3	143	298	13.5	13.5
20. Vijayanagaram	1.45	1977-82	6	48	140.0	36	179	79.4	79.4
21. Anapalle	0.73	1975-82	4	24	71.4	42	149	36.3	36.3
22. Hazaribagh	0.80	1980-83	1	2	33.3	84	99	6.0	6.0
23. Faridabad	3.31	1982-83	54	51	-2.7	192	262	18.2	18.2
24. Hissar	1.37	1982-83	95	67	-14.7	238	154	-17.6	-17.6
25. Karnal	1.32	1981-83	80	80	0	190	172	-4.7	-4.7
26. Jind	0.57	1982-83	72	72	0	72	72	0	0
27. Hamirpur	0.09	1981-83	2	2	0	237	89	-31.2	-31.2
28. Greater Cochin	6.86	1981-83	25	283	506.0	531	—	—	—
29. Indore	8.29	1981-83	70	70	0	377	710	44.1	44.1
30. Ratnagiri	0.47	1980-83	4	7	25.0	32	41	9.0	9.0
31. Alwar	1.46	1981-83	25	25	0	200	140	-15.0	-15.0
32. Bhatinda	1.27	1983-83	10	20	50.0	200	500	75.0	75.0
33. Ludhiana	6.07	1981-83	55	100	40.9	700	1100	28.5	28.5
34. Chingalpattu	0.47	1971-81	2	1	-5.0	74	865	106.8	106.8
35. Ghaziabad	2.87	1982-83	125	80	-18.0	1500	1000	-16.6	-16.6
36. Jodhpur	5.06	1982-83	170	153	-5.0	—	—	—	—

NOTE: Data not available.

SOURCE: TCPO Survey.

present the list of towns and the relevant data). An attempt was made to obtain the highest (maximum) and lowest (minimum) prices for the years that were covered between 1980 and 1983, because it is extremely difficult to compute an 'average' price. The 57 representative towns and cities cover 17 states and 2 union territories.

TABLE 4 INTERCITY VARIATION OF LAND PRICES OF SELECTED CITIES
(ONE YEAR DATA)

(Land value=Rs. per sq. m.)

<i>Sl. No.</i>	<i>Name of the City</i>	<i>1981 Urban population (in lakh)</i>	<i>Reference year</i>	<i>Minimum price (Rs.)</i>	<i>Maximum price (Rs.)</i>	<i>Variation (Rs.)</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Sonepat	1.09	1982	65	65	0
2.	Panipat	1.38	1982	84	84	0
3.	Bahadurgarh	0.37	1982	55	55	0
4.	Gurgaon	1.01	1982	66	196	130
5.	Panchkula	0.11	1982-83	47	91	44
6.	Itarsi	0.64	1983	54	162	108
7.	Kota	3.58	1982-83	71	—	—
8.	Sri Ganganagar	1.24	1982-83	126	—	—
9.	Belgaum	3.00	1980-81	50	400	350
10.	Bhadravathi	1.31	1982	40	450	410
11.	Hospet	1.15	1982	1	75	74
12.	Shimoga	1.52	1982	40	520	480
13.	Bijapur	1.47	1982	21	269	248
14.	Mangalore	3.06	1982	69	232	163
15.	Bellary	2.02	1982	20	100	80
16.	Hubli-Dharwar	5.27	—	4,000*	50,000*	46,000
17.	Mysore	4.79	—	95	179	84
18.	Raichur	1.75	—	5	586	581
19.	Cuttack	2.70	1983	31	247	216
20.	Bareilly	4.50	1982	30	595	565
21.	Darjeeling	0.58	1982-83	119	397	278

NOTE: Data not available

In per Gunta and in sq. m. 100, 1250* and 1150*.

The data that were obtained in the TCPO survey are subject to certain inherent limitations, arising mainly from the unprofessional approach to maintenance of land price records, the occasional land

transactions in major cities, the difficulties in having access to authentic information of the actual land dealings in the private sector and therefore the predominant dependence on what is available in official records of land transactions, both of public and private sector activities. The major deficiencies concern *inter alia* :

- (i) Under-reporting;
- (ii) Restriction of data to specific plot/location in the town;
- (iii) Relation of data to only transactions that actually took place and were recorded;
- (iv) Non-comparable time horizon to which the data relate;
- (v) Non-availability of data on crucial issues like type of construction (high-rise or plotted development), nature of the plot (developed or underdeveloped) and size of the plot (large-sized for cooperative societies or small plots for individuals);
- (vi) Non-comparability of inter-city and intra-city data; and
- (vii) Unrepresentativeness of the highest and the lowest declared price of the actual average price situation.

In view of these limitations, it may be desirable to discuss in the Workshop, on the basis of personal experiences, the extent of under-reporting and/or non comparability of the data of the type presented in the TCPO survey and also, to the extent possible, suggest some norms to blow-up the TCPO data to capture the true position. In the absence of any preferable data base, we have used the TCPO data to identify issues (as the data are broadly indicative of the problems) and not to establish the gospel truth about the magnitude of changes in urban land prices.

The Main Results

The TCPO study has presented the urban land prices data under three categories of towns: metropolitan cities, capital towns and medium-sized towns, and it has also studied the relevance of population and density on the land prices situation, bringing out in the process, both intra-city and inter-city variations.

From the point of view of the discussions at the Workshop, the following major findings of the TCPO survey have special relevance :

- (i) Many official decisions to change the land use pattern result in large scale escalation in the price of urban land. When a government decides to provide highways and to undertake physical and social infrastructure activities there is a tendency for value of land in the vicinity to be immediately affected.

- (ii) The policy of a public agency of large-scale acquisition of land for development, housing and related uses has its own effect on the demand and value of land. The authorities should have a long term perspective and approach so that large scale acquisition of urban land could act as an effective control measure on the availability and price of urban land. For this purpose, agricultural and raw land may be acquired much in advance and then developed for residential and/or other uses so that the increase in price could be prevented before the speculative price sets in the system.
- (iii) Public provisions of services will allow for cost reduction on a larger scale than if such services are provided by private agencies. This would particularly benefit the lower income households. The selection of appropriate indigenous technologies can also lead to cost reduction besides ensuing public participation and utilisation of the infrastructure that is provided. Part or full recovery of investment and operating costs could be attempted through user charges.
- (iv) While re-development of older colonies of the city is important, the new urban extensions should receive due attention in planning to conserve resources by better urban patterns to relieve older sectors from the pressures of unintended growth. Once unauthorised and unplanned colonies grow in the outer periphery of the existing colonies, it becomes difficult and costly for their subsequent rehabilitation or up-grading.
- (v) The provisions of low-cost housing and upgrading spontaneous settlements could work out to be an efficient way of using scarce resources by adopting appropriate standards and technologies. The utilisation of abundant unskilled labour resources and low-income savings could also be planned.
- (vi) The concept of compatible mixed land use in order to reduce journey time to work, economise on energy saving modes of transport and housing for staff of major projects near the place of work would be useful if proper land-use policies are formulated to bring down the price of land.

RELEVANT FACTORS

A few factors can be identified, which *a priori* have a bearing on the urban land price situation. These are :

- (i) Land use controls, which limit the supply of land, both in general and for specific purposes;
- (ii) Changes in land use pattern;

- (iii) Investments on development of the land and provisions of services;
- (iv) Changing locational advantages in response to expansion of the town/city;
- (v) Urban land ceiling legislation;
- (vi) Government policies on FAR, zoning, etc., and
- (vii) Existing and projected housing shortage.

These factors are land supply—relevant. By affecting the supply of serviced land, these factors can influence both the direction of price changes and its level. By and large, land development activities tend to push up the prices (even though the supply of land increases), mainly because of the wide gap in the supply-demand position. In fact, any development activity has a linkage effect on even unserviced land in the neighbouring locations and on existing serviced land already in use. Changes in land use (generally from agriculture to industrial/residential/commercial use), should ordinarily have a sobering effect on land prices, as the supply of land rises; in practice the downward trend in prices, if at all observed, is momentary, largely because the incremental land is far too inadequate with reference to the surging demand. Thus, unlike in the case of other commodities, an increase in the supply of land (because of the limited amount) hardly lowers the prevailing land prices and may rather generate an upward process. There is also a general consensus that the urban land ceiling legislation and government directives on FAR, zoning, etc., play a special role in limiting the flow of adequate land into the market. These factors assume special significance in the context of large plots lying vacant in some of the highly-priced locations in all the towns/cities. Equally relevant is the phenomenon of inadequately utilised lands.

On the demand side, several factors are operative, building up the demand for urban land at a rate faster than what the incremental supply of land can meet, resulting in a net increase in land prices. The important demand factors include :

- (i) Increase in household/community incomes and purchasing power, per capita and as well as total;
- (ii) Increase in urban population, mainly due to in-migration and partly due to natural growth;
- (iii) Inflow of financial resources into the land market from foreign remittances and the parallel economy;
- (iv) Yields in alternative investment outlets, due to the rising price situation; and

- (v) Growth of economic activities, particularly of secondary and tertiary sectors.

A general factor which can be said to have a direct bearing on the demand side and an indirect bearing on the supply side, is the general rate of inflation in the country. Urban land prices would rise, even in an unchanged demand and supply situation in response to the overall rate of inflation. The impact of the inflationary situation on urban land prices can be estimated with the help of a general price deflator and it would be useful to share state-level experiences on the relative trends in inflation and urban land prices, an issue on which the TCPO study has provided some insight.

The TCPO study has provided some empirical evidence on the role of population growth and urbanisation on the urban land scene. During the last three decades, the pace of urbanisation in India is on increase and the intensity of growth is more in case of metropolitan areas. During 1951-81 while urban population of the country increased from 62.4 millions to 156.2 million the population in metropolitan cities increased from 11.7 million to 42.0 million in 1981. Thus, the urban population increased by 150 per cent, whereas the corresponding increase in the population of metropolitan cities was 260 per cent. The net accretion to urban population during the period has been 93.8 million and 30.4 million has been in the metropolitan cities. As the basic urban amenities and services have not been able to keep pace in the metropolitan cities, the unchecked population growth has led to land grabbing in the city and/or on its periphery, or wherever available. This practice has reduced the availability of government land for development and undertaking construction work. According to the 1981 census, about 27 per cent of urban population lives in million plus metropolitan agglomerations. Therefore, the problem of scarcity of land is more pronounced in the metros and super-metros as can be seen in the light of the increasing trend in urban population shown in Table 5.

TABLE 5 GROWTH OF METROPOLITAN CITIES IN INDIA 1951-81*

	1951	1961	1971	1981
1. Number	5	7	9	12
2. Population (Million)	11.66	17.85	27.42	42.02
3. Total urban population (Million)	62.44	78.88	109.09	156.19
4. (2 as per cent of 3)	18.7	22.6	25.1	26.9

*Only million plus cities.

Socio-Economic and Financial Implications

In physical terms, the immediate consequence of the high price of urban land is to make housing an expensive activity and to intensify

the use of land that one has. This paves the way for non-provision of open spaces, parks and playgrounds and also creates densities far in excess of the level of services that can be provided. In the process, the quality of urban life deteriorates. Provision of any additional service is made difficult due to lack of space, thus bringing about a vicious circle. In the process, the urban environment can reach the level of near collapse.

In economic terms, the high price of urban land has already become a major part of housing cost in many urban settlements, and is acting as a deterrent for housing investment. Apart from the housing sector, the high land price leaves very little capital for investment in other production sectors of the economy like industry, agriculture and trade, as a sizable amount of capital gets tied up in land transactions. The deposits in banks may also start dwindling due to expected higher returns from investments in land than the rate of interest available on term deposits in bank. Further, land is considered as the safest investible asset, where value can, *a priori* be always expected to rise. The social aspects of the high price of land are no less alarming. The high price and rentals of accommodation, in urban areas restricts their accessibility to the rich on the one hand, and creates slums and squatter settlements, on the other.

POLICY ISSUES AND OPTIONS

Herold Dunkerley, a leading expert in urban development programmes, has provided an appropriate perspective for discussing policy measures. To quote him (1983, pp. 31-32): "In cities in developing countries, where the pressures on land are strong and administrative capacity is low, it is to be expected that strong restrictions on land use will tend to be circumvented. This increases the need to consider packages of controls, taxes and investment policies and programmes that are consistent with the real prospects for implementation and take account of both the long-term and the immediate position."

We might focus our discussion at the Workshop on three broad categories of policy issues :

- (i) Public intervention and regulatory measures;
- (ii) Role of private land developed in the land market; and
- (iii) Financial and fiscal measures

Public Intervention and Regulatory Measures

A pragmatic public land policy has to be formulated, considering the entire range of problems. To facilitate systematic urban develop-

ment, public land acquisition policy and procedures have to be enunciated to meet the demand for land for housing projects and developing a sound infrastructure, a comprehensive land use policy has to be formulated and implemented.

The large-scale land acquisition for urban development, housing and providing other infrastructure is one approach that finds general support. Early land acquisition in large scale in all urban areas has, a prior, many advantages. The public agency will benefit because of lower costs, which after development can off-set the expenditure on development. Due care can be taken at the planning stage to ensure housing all sections of the society, particularly the lower income groups. Enough provision should be made for providing infrastructure for living on accepted standards and at comparatively lower costs, since unlike the private colonisers, the public agency is not motivated by investment for profit.

The provision of services on a large-scale, especially the provision at the public level, will bring in economies of scale and allow for use of appropriate technology. It would mean lower costs to the consumer. In this respect, care should be taken to cater to the needs of new urban localities by proper planning so that the degeneration of older living areas of the town is not repeated in the new centres.

The policy should take care not only of developed land, but also of skeleton structure, specially for low-income residents and migrants. Low income housing provides an extremely efficient use of scarce resources in the use of appropriate standards and technologies, mobilisation of low income savings and can effectively tap the abundant unskilled labour.

The policy should also plan for encouraging individuals and groups for getting shelter for themselves. The policy will have to review certain existing procedures to remove constraints for individuals and groups to enter housing activity. The following are some of the measures which could be considered in this regard.

Liberalisation of Building Bye-laws and Land-use Controls: Greater density for residential use, consistent with the level of planned services, should be encouraged by liberalising building bye-laws. Economy in the use of land could be effected by providing group open spaces and lesser set-back restrictions. Land use planning should promote city's economic functions, locate residences near job opportunities and encourage mix land use in city planning.

Review of Land-tenure: A review of the 'Lease-hold' tenure of land is necessary to promote orderly operation of land markets. The Apartment Ownership Act, as it exists in Maharashtra and West Bengal is necessary to enable the members of Group Housing Societies to possess individual titles to apartments.

Finances : Easy access to finance for housing through commercial banks, HUDCO, HDFC, and the new housing finance institutions that are proposed to be established in the Seventh Plan period will go a long way in encouraging housing activity. The policy should also be geared to assistance in procuring construction materials, allotment of land, technical assistance to group housing by public agencies.

Security of Tenure: Squatter settlements on public land which are situated for a long time and on land, which is not immediately required for public purposes, may be given security of tenure on long-term lease basis to encourage the settlers to provide themselves with approved housing and living conditions.

Legislative Reforms: A review of legislations like the Urban Land Ceiling and Regulations Act, and the Rent Control Act is warranted. The UICR has virtually locked up a large amount of land acquired under it, creating a shortage in the market. The Rent Control Act has put impediments to legitimate construction activity by discouraging new investments.

The regulatory measures should include regulations of land ownership, land holding, land-use and public assistance for land development. All measures should aim at improving the land market by bringing in vacant land for productive use and facilitate proper land management. Trading in land must be regulated by establishing price controls and price freeze to check speculation in land.

Other schemes have to be implemented to reduce the price of land in the urban areas. Following are some of the schemes suggested in the TCPO Report:

- (i) Land Re-adjustment Scheme;
- (ii) Sites and Services Scheme;
- (iii) Self-help Housing Scheme;
- (iv) Housing Subsidy Scheme;
- (v) Constructing of large Night-Shelters for transiting, temporary service class Scheme; and
- (vi) Public Land Banking Scheme.

Role of Private Developer in the Land Market

Private enterprise in any sphere is motivated profits from the investments it may make. This is true of private initiative in the housing sector also. Private participation in the housing activities in India is a recent phenomenon and is to be found only in a few metropolitan cities. They operate mostly in the periphery of the metropolitan cities, by taking development of new colonies on available land. The public agencies have generally not helped the private developers of land. If the private developers of urban land

are to make a valuable contribution to the alleviation of the housing problem, it will be necessary to provide them some incentives to even undertake housing programmes.

The package of financial and fiscal measures would include the appropriate pricing of land inclusive of actual cost of development and provision of services, use of fiscal instruments to regulate land prices and provision of finances to the ultimate beneficiary, the home owner and also to the institutions that undertake land development and house construction activities. There is a growing feeling that land prices should truly reflect all the economic costs incurred in developing the site and for provision of infrastructure facilities. The role of subsidy should be phased out and may, at best, be restricted to housing for the weaker sections of the population. In this context, it has to be considered whether cooperative group housing societies, which would be expected to play the catalytic role in housing activities in the coming years (rather than individual construction on plots) should be provided at land sites rates far below the market price. A realistic land price which takes into account all costs and provides for a reasonable margin to the development agency and supplier, both the private and the public sector, would have a far-reaching impact on bringing a substantially larger quantum of land into the open market instead of small trickles of land that now enters the land market periodically. The case for economic prices being charged to cooperative group housing societies stands on two grounds :

- (a) The per cost per sq. mt. per member would not rise very substantially; and
- (b) The shortening of the 'waiting period' in acquiring developed land would significantly reduce the total construction costs, particularly due to construction materials and labour wages, in an inflationary situation.

An appropriate pricing policy for urban land would encourage people/institutions who presently possess land to release them in the land market and it would also encourage people/institutions who own old buildings to demolish these structures and bring new land into the market. Provision of financial assistance for land acquisition institutional and house construction can play a particularly important role in encouraging the latter category of land owners in releasing the land into the land market.

In the case of public sector holdings of vacant land serviced as well as unserviced, appropriate land price policy would also have a similar effect of stimulating them to release sufficient land to meet the

requirement of the people. Their policy of auctioning land tends to unnecessarily hike up prices in a land-scarcity situation. This policy may become irrelevant in a situation where inflow of land into the land market becomes more substantial and meaningful than at present. The auctioning of publicly-owned lands may, at best, be restricted for commercial and industrial purposes, it is desirable to consider a strategy of abolition of periodic auction and to charge economic prices.

Fiscal policy can play an important role in arresting the trend of rising urban land prices in recent years. Income tax assesseees are provided exemption from the capital gains tax on capital gains earned through sale of a house, provided they are invested in another house. It is desirable to extend this preferential tax treatment to capital gains earned on sale of land, provided the same are used to construct/acquire a house or/are placed as term deposits with a housing finance institution. This tax measure will encourage land owners to bring their property into the open land market. In order to further strengthen the process of land supply through the fiscal system, it might be considered whether all expenditure on land development and provision of services is allowed to be depreciated as a capital expenditure, even though the value of land *per se* is not depreciable. Further, in the computation of property tax, a relief may be provided for the first five years relating to the inclusion of the cost of land (including expenses on development and services), while computing the tax base for property taxation. Some monetary ceiling on the maximum annual benefits on the above-mentioned fiscal incentives might be stipulated so that owners of very large properties do not get an unusually wide tax shelter.

The objective of the proposed fiscal incentives is not only to stimulate the inflow of land into the urban land market but to also provide housing finance institutions with a source of funds. These institutions which may be set up in the seventh plan period on the lines of the saving and loans associations in the United States and the building societies in the UK, would mobilise household savings within specific geographical jurisdictions. The Minister for Works and Housing has, therefore, rightly emphasised, in his recent Address to the International Seminar in connection with IYSH programme, of the need for a quantum multiplication of institutions for construction and financing housing activities. Two state governments have already taken up action plans to strengthen home financing intermediation for housing within their respective jurisdiction.

Once housing finance intermediation is strengthened and its services are widespread all over the country, it can be reasonably expected that housing costs may become affordable to the target

groups provided that financial intermediation is extended not only to house construction but also to land acquisition and development. □

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*Planning Slum Upgradation Programmes in India : Some Issues**

CHETAN VAIDYA AND K. RAMCHAND

THE TASK Force on Housing and Urban Development set up by the Planning Commission has estimated that the slum population of India in 1981 was 32 to 40 million, which is about 20 to 26 per cent of the 162 million total urban population in the country.¹ Slums have long been recognised as a major urban problem in India. The initial response to the problem of slums was the traditional 'clearance' and relocation of the communities in costly subsidised public housing. However, since 1972, the emphasis shifted from slum clearance to slum improvement programme. This programme known as environmental improvement of slums (EIS) was launched to provide certain basic amenities and services in the slum areas. A total of about 11 million slum dwellers were reported to have been covered by this programme upto 1983.²

The environmental improvement scheme figures as one of the top priorities of the central government. However, this programme with emphasis on provision of basic services is only ameliorative in nature. It does not provide a long term solution to the problem. Slum Upgradation programmes which allow a more permanent solution consistent with the principles of affordability, cost recovery and replicability are now being thought of by some cities. These programmes have been apparently successful in some large cities such as Madras.³ Slum upgradation programme in Madras began

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¹"Planning Commission, *Task Force on Housing and Urban Development*", New Delhi, Planning Commission, 1983, p. 122.

²D.D. Malhotra, "Housing the Urban Poor: The Policy Perspectives", *Nagarlok*, October-December, 1983, p. 53.

³"India's Struggle against Slums", *Urban Edge*, November, 1982, p. 5.

in 1978 and by 1983-84 about 47,000 households were directly affected by it. In the slum areas chosen for upgrading, tenure is given to existing inhabitants once they complete payment of the plots their homes are situated on. Though no comprehensive evaluation study of the programme has been undertaken, some *ad hoc* studies have identified certain problems of the programme.⁴ In future, any slum upgradation scheme undertaken in Madras or other cities should deal with these problems.

Many cities are now planning to undertake slum upgradation programmes. A very large-scale programme is likely to be undertaken in Bombay in the near future. Some secondary cities such as Indore, Surat, Baroda and Jamnagar have undertaken or are planning to undertake the programmes. Schemes are being prepared for possible financing by the World Bank. Despite the break-through in addressing the slum problems in some large cities, there are many issues in planning slum upgradation schemes for which there are no universal solutions. These issues will have different solutions for different cities. This paper based on studies of planning slum upgradation schemes in two selected urban centres in India, has identified various such issues and suggested guidelines to approach them.

APPROACH

Shelter programmes based on principles of affordability, cost recovery and replicability were initiated in India under the World Bank assisted urban development projects. Therefore, any study for identifying issues for slum upgradation schemes should be carried out in the context of the Bank's approach. This has necessitated a review of its approach for urban development.⁵

In the context of increasing urban problems, the World Bank initiated an urban lending programme in 1972. It was recognised that the programme would not be able to 'solve' the urban problems but "exert catalytic or dynamic influence on the pattern of growth".⁶ One of the important objectives of the projects was to demonstrate that low-cost technical solutions on non-subsidised basis are feasible and replicable. It was expected that these projects would help to reorient government policies for the sector. The Bank's urban

⁴See "Making Slums Habitable", *Hindu*, December 7, 1984 p. 8.

⁵The review is mostly based on M.A. Cohen, "Learning by Doing—World Bank lending for Urban Development, 1972-82", Washington D.C., The World Bank, 1983, pp. 3-9.

⁶Urbanisation Sector Working Paper, Washington D.C., The World Bank, 1972, p. 57.

lending strategy was not primarily intended to transfer Bank resources as much as it was intended to provide technical assistance to establish a framework for investment from other sources. Within the policies of urban development, initial objectives in shelter sector were presented in 1975 in the Bank's Housing Sector Policy Paper. In view of the vast scale of the shelter problems in developing countries the initial objectives were restated in 1980. It is now being recognised that one of the preconditions to financial replicability is a sound pricing policy, while the precondition for physical implementation, cost recovery and maintenance lies in strengthening of housing and infrastructure institutions in the urban sector.

Therefore, a slum upgradation programme should not only demonstrate that low cost affordable solutions are feasible but also help in developing institutions which can manage and replicate such programmes over a period of time. In this perspective, planning of slum upgradation schemes in two selected centres has been studied.

SELECTED URBAN CENTRES

Two secondary cities (population less than 1 million) of Gujarat State have been selected for this study. These cities have been termed as City A and City B. The total population of the two cities in 1981 was 440 and 776 thousands respectively. Both the cities are characterised by rapid population growth and relatively high density of population. The annual growth rate of population during 1971-81 in City A was 4.8 per cent whereas the corresponding figure for City B was 6.4 per cent. Provision of housing and service plots has not kept pace with their need, particularly for low income groups. Such deficit in housing supply has manifested itself in the formation of slums. According to the census of slums sponsored by Gujarat Slum Clearance Board in 1983, about 47 thousand were living in City A and the corresponding figure for City B was 187 thousand. Furthermore, the growth of slum population has been faster than the growth of overall population. In the context of rapidly deteriorating situation of the slums, the municipal corporations of the two cities had proposed to undertake slum upgradation schemes with the objective of improving living conditions of the urban poor. For this purpose, the study of slum population and preparation of schemes for slum upgradation was carried out.⁷ For preparing replicable schemes, two to three slums were selected from each city for detailed analysis. Schemes were prepared in view of the proposed Gujarat Urban Development project.

⁷Authors were principal professionals responsible for completion of the studies.

PLANNING PROCESS

Given the approach for studying slum upgradation programmes, it is necessary to understand the process of planning these schemes in the two selected urban centres. As part of the proposed urban development project, the World Bank project identification mission visited these two and other centres of Gujarat. At this stage, the municipal corporations were already involved in a number of urban poor schemes such as construction of low cost housing, environmental improvement, provision of individual services at subsidised cost, etc. The mission stressed upon the local bodies and the state government the need for reorienting public policies for the urban poor schemes and indicated readiness to assist slum upgradation schemes for the two cities. This necessitated the need for carrying out the study of slum population and preparing feasibility reports for the schemes. The terms of reference for the study were prepared by the mission.

Consultants were appointed to carry out the study. They worked very closely with the officials of the local bodies and the engineering aspects for the schemes were prepared by technical staff of the local bodies.

The schemes were discussed with the mission at three to four different stages. First, a pre-feasibility report based on survey of selected slum households, analysis of their affordability and priorities and average cost norms was prepared. In second phase of the work, the emphasis of the study was on estimating effective demand for various services and working out pre-engineering details for the schemes. Detailed physical survey of the selected slums was carried out as part of this phase. It may be mentioned here that at pre-appraisal stage one of the two municipal corporations decided not to go ahead with this scheme as it had made commitments for other capital investment projects. In third phase, detailed cost estimates and methods of cost recovery were worked out. The schemes were appraised by the mission in November, 1984. The municipal corporation will be implementing the schemes in future.

ISSUES

General

Based on the study of planning process of slum upgradation schemes in the selected centres, the present study has identified certain critical issues such as investment decision, role of external technical assistance, selection of slums, individual vs public facilities, land tenure, methods of cost recovery, feasibility of building loans,

management and replicability. There cannot be a global approach to these issues. Operationally, the approach for individual schemes should be linked to socio-economic levels of intended beneficiaries and to the conditions in specific cities. In this context, this section has discussed the various issues.

Investment Decision

Two important aspects to be considered while taking a decision regarding undertaking the upgradation programme are availability of financial resources and pricing policy. The urban local bodies in India, generally, have marginal resources for capital investment programme.⁸ Whatever marginal resources are available, are needed for provision of basic services such as water supply and sewerage. It is worthwhile to mention here example of a municipal corporation (MC). This city with a population of about 500 thousands does not have proper sewerage system. MC has proposed to undertake sewerage and water supply augmentation projects. The additional annual maintenance and debt servicing burden for these two projects is estimated to be Rs. 100 million, which is more than the present total current revenue of the corporation (Rs. 78 million).⁹ Efforts will be required to mobilise resources for MC to meet the additional burden due to the purposed projects. It is just not possible for this corporation to take up any major slum upgradation programme.

Most of the local bodies in India do not have surplus budget to take up the programme. As far as possible the slum upgradation schemes will have to be self-financing. About 44 to 72 per cent of slum households in large cities are living on public lands.¹⁰ Slums on private lands can also be acquired through special legislation. Such legislations have been enacted in Uttar Pradesh and Madhya Pradesh States of India. The cost of the schemes can be recovered from the existing slum households by linking it with provision of land tenure. Land which has been illegally occupied by the slum dwellers can be used as a resource for undertaking the schemes.

The second aspect to be considered is a sound pricing policy. At present, many local bodies are giving subsidised urban facilities. A municipal corporation in Gujarat has undertaken a programme of providing free individual toilet and water supply facilities to the urban poor households. Financial requirements for such a pro-

⁸A. Datta, "Municipal Finances in India". WB Discussion Paper No. UDD 18, Washington D.C., The World Bank, 1981, p. 149.

⁹*Resource Mobilisation Study for Rajkot Municipal Corporation*, ORG, Baroda ORG, 1982, p. 164.

¹⁰Estimates based on the sample survey conducted by the National Sample Survey Organisation in 1976-77.

gramme is too large to be met by the local body alone, so its coverage is limited. It is necessary to reorient such pricing policies. Slum upgradation schemes could be undertaken only if the concerned urban local body or development agency accepts in principle that cost of implementing the schemes should be recovered from the beneficiaries. These aspects are further discussed in the subsection on cost recovery.

External Technical Assistance

Urban local body or development agency, planning to undertake upgradation programme, may require external technical assistance as its staff may not be aware of some of concepts used in preparing these schemes. This assistance could be obtained either from the state government agencies or by appointing consultants. The external agency could provide assistance either in the form of advisory technical service or full-fledged contract for preparing the schemes. One of the major objectives of the programme is to develop the institutional capacity of the urban centres. Therefore, as far as possible, role of the external technical agency should be to provide advisory technical service with emphasis on on-the-job training rather than taking up full-fledged projects. Existing staff of the local body should be encouraged to participate in the planning process. Eventually urban local bodies should be able to undertake routine upgradation schemes with limited external technical assistance. In one of the selected urban centres an attempt was made to carry out this experiment.

Selection of Slums

Selection of appropriate slums for carrying out the programme is also an important issue. Generally, the slums are selected based on physical characteristics such as density, location and existing level of services. It is expected that slum selection based on these criteria provides a basis for identifying potential and need for development. For successful implementation of the schemes, it is also necessary to consider the readiness of the slum communities to participate in this programme. Local organisation of the slums could be encouraged to make an inventory of their resources and options. This could then form one of the criteria for selection of slums.

Public Vs Individual Facilities

It is necessary to select an appropriate package of improvements for various shelter schemes. The improvements include provision or augmentation of water supply, toilet, bath, drainage, footpaths, roads, streetlighting, and community facilities. Some of these facilities

such as water supply and toilet can be provided at public or individual level. With regard to level of these facilities, generally, two extreme approaches are taken. In some schemes all the households are provided with public toilets and in some all the households are provided with individual facilities. However, the level of these facilities needs to be linked with the affordability and priorities of the intended beneficiaries. Within an individual slum, affordability of households will vary and the scheme should provide various alternatives to different income groups. For this purpose, it would be necessary to estimate the affordable budget profile for various income groups. Taking into account percentage distribution of slum households by income groups and based on certain assumptions regarding percentage ability to pay, downpayment and ability to raise loans, the affordable budget profile for slum upgradation is presented in Table 2. The average monthly household income of these slum households is Rs. 631. The affordable budget for households in the income group of Rs. 350 and below is Rs. 590 and the corresponding figure for households in the income group of Rs. 1,000 and above is, as high as, Rs. 7,865. Analysis of cost of facilities indicates that individual water supply and toilet (complete) facilities may be affordable to about 25 per cent of the slum households (Table 1) whereas individual toilet (upto plinth) may be affordable to another 28 per cent of the households. It indicates the need for estimating the affordable budget and linking it with the cost of various facilities.

Land Tenure

Provision of land tenure to slum dwellers is the most critical activity of this programme. Impact of temporary land tenure can be analysed from study of one selected Slum of Rajkot City. In this slum, environmental improvement scheme (EIS) was implemented in 1977. As this slum was surveyed in 1973 and 1983, it is possible to identify the impact of the EIS. Though the improvements under this scheme were only limited to physical infrastructure it has indirectly provided security of tenure to the slum dwellers. Under this scheme, the local body gave an undertaking to the state government that it would not remove or demolish the slum for at least ten years. With the implementation of the scheme, a large number of households have made additional investment in housing. In 1973, as many as 56 per cent of households were living in deteriorating housing conditions. The corresponding figure at present is almost negligible (0.4%) (Table 3). In 1973, only 2 per cent of the households were living in huts with plinth, at present almost all the households have plinths in their houses. A large number of house-

TABLE 1 CAPITAL COST PER HOUSEHOLD—INDIVIDUAL AND PUBLIC FACILITIES

<i>Facility</i>	<i>Capital Cost per household (Rs.)</i>
(a) Individual water connection	480
(b) Public water tap	70
(c) Individual toilet (complete)	3,000
(d) Individual toilet (upto plinth)	1,000
(e) Public toilet	335

holds have gone for individual facilities like water supply and electricity. In 1973, none of the households had these individual facilities. Thus the temporary security of tenure has provided an incentive to the households to mobilise savings and self-help efforts.

TABLE 2 AFFORDABLE BUDGET PROFILE—SLUM UPGRADATION SCHEME

<i>Household Income Group (Rs.)</i>	<i>Percentage of households</i>	<i>Ability to pay (Rs. per month)</i>	<i>Ability to raise loan (Rs.)</i>	<i>Down Pay- ment (Rs.)</i>	<i>Total (Rs.)</i>
(1)	(2)	(3)	(4)	(5)	(6)
Upto 350	15.3	6 (3)	540	50	590
351 — 500	32.1	20 (5)	1800	165	1965
501 — 750	28.2	30 (5)	2700	250	2950
751 — 1000	15.7	60 (7)	5400	500	5900
Above 1000	8.7	80 (7)	7200	665	7865

- NOTES
1. Percentage distribution of households by income groups is based on survey of slums in one of the selected urban centres.
 2. In column (3) figures in parenthesis represent ability to pay per month as percentage of monthly income.
 3. Ability to raise loan is estimated based on 12 per cent interest rate repayable over 20 years.
 4. Down payment is assumed to be 9 per cent of column (4).

It is often believed that improvement of slums and granting of land tenure causes displacement of the poor by somewhat better-off households. However, study of Ashoknagar slum improvement scheme in Madras has shown that simple 'gentrification' thesis has

TABLE 3 SOME SOCIO-ECONOMIC INDICATORS FOR A SLUM OF
RAJKOT CITY—1973 AND 1983

	1973	1983
(a) Number of households	113	223
(b) Percentage of households with monthly income below Rs. 350.	94	35
(c) Percentage of households living in kutchha (temporary) type housing	55.8	0.4
(d) Per capita living space (sq. ft.)	31	34
(e) Percentage of huts with plinth	2	100
(f) Percentage of households with individual water connection	—	14
(g) Number of public standpost	—	10
(h) Number of public toilets	—	22

SOURCE: *Survey of Slum in Seven Cities of Gujarat*, ORG 1973 and Rajkot Slum Survey, 1983.

no universal validity. Improvement of this slum has not caused displacement of the poor. On the contrary, out-migration was negligible and immigration was substantial, with newcomers being somewhat poorer than stayers.¹¹

Though granting of security of tenure is considered to be key to a successful upgrading scheme, granting of outright ownership may prove to be unsuccessful. More promising approach could be the establishment of a leasehold system without sub-lease clauses. The terms of lease agreement could be extended over a period of 25 years with option to buy the lease after 10 years.¹²

Cost Recovery

The aspect of cost recovery should be considered from the point of affordability to pay and need for replicability of such projects over larger area on continuing basis. The cost recovery is difficult for slum upgradation, where the population already occupies the neighbourhoods and houses selected for improvements.¹³ It is all the more difficult in schemes which combines provision of individual and public facilities. Following alternatives can be examined for the purpose of cost recovery :

- (a) In order to recover cost of public facilities a general cess

¹¹Pieter Robbin, "Improvement and the Better-off-Displacement as a Consequence of Squatter Settlement Upgrading", Amsterdam, Vrije Universiteit Amsterdam, 1984 p. 63.

¹²U. N. Centre for Human Settlements, *Survey of Slum Squatter Settlements*, pp. 180-190.

¹³M.A. Cohen, *op. cit.*, p. 26.

could be introduced, which could be a payment against granting of land tenure.

- (b) A service charge could be introduced to recover specific cost of providing an individual facility.
- (c) In order to recover the cost for individual facilities alongwith the public facilities, the alternative of bringing slums under the scope of property tax should be kept in view. This is justified by the fact that with improved facilities their property values would go up and they could be brought under the purview of property tax. The advantage of this would be that individual facilities provided for slum households could be charged in line with other properties of the urban area.

In general, it is recommended that an integrated pricing for both individual and public facilities should be adopted. A tentative pricing scheme for upgradation scheme for one of the selected centres is presented in Table 4. It is imperative that the decision on the approach to pricing with regard to the method of cost recovery for individual and public facilities should be taken up before implementation of the scheme. It should also be discussed with the slum dwellers.

TABLE 4 TENTATIVE SCHEME OF PRICING—SLUM UPGRADATION

<i>Facility</i>	<i>Method</i>	<i>Charge per household per month* (Rs.)</i>
Public Facilities	General Cess	9
<i>Individual Facilities</i>		
1. Water connection	Service Charge	10
2. Toilet		
(a) Complete	Service Charge	30
(b) Upto Plinth	Service Charge	14

*Includes maintenance charges.

Building Loans

It is necessary to study the process of housing construction to identify the feasibility of providing building/housing loans to the slum dwellers. Most of the slum households construct their houses in different phases. Analysis of type of house and number of years of stay for one selected slum of Gujarat is presented in Table 5. The analysis indicates that the slum households have improved their houses over a period of time. Housing construction activity in the slums is a continuous process and with granting of land tenure the

households would make further improvements in their houses. At this stage, a building loan may be necessary. However, this loan should be provided based on overall burden of the household. Monthly instalment for a loan of Rs. 2000 at an interest rate of 12 per cent and 20 years repayment period is estimated to about Rs. 22. Table 6 gives total housing burden for alternative levels of facilities. It shows that building loan of Rs. 2000 may not be feasible for households with income group below Rs. 500. The decision of providing building loans should be based on total housing burden and ability to pay.

TABLE 5 PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY TYPE OF HOUSE AND YEARS OF STAY AT PRESENT LOCATION—SELECTED SLUM OF GUJARAT

No. of years (at present slum location)	Type of house percentage		
	Kutcha	Semi-pucca	Pucca
Up to 1	75.8	24.2	—
2 to 3	47.5	52.1	0.4
4 to 5	34.8	64.4	0.8
6 to 7	35.2	64.4	0.4
8 to 10	25.2	74.1	0.7
Above 10	25.8	73.4	0.8
TOTAL	40.1	59.4	0.5

SOURCE: *House to House Survey*, ORG, 1984.

Management and Replicability

The earlier discussion has identified certain issues for planning slum upgradation schemes. However, for successful implementation of the schemes, management and replicability are the two key issues. Any long-term approach for addressing the slum problems would require study of these two key issues. Shelter programmes, particularly slum upgradation schemes, are hard to manage as they are 'people-centred' programmes.¹⁴ Success of such programmes would depend on stimulating people's participation. This indicates need for a distinctive characteristic of management for this programme. For example, for successful management of a slum upgradation scheme critical activities would be: (a) provision of land tenure, (b) maintenance, and (c) cost recovery. It is very difficult for existing staff of the urban local bodies to operationalise these critical activities because these are not problems of routine physical construction or tax collection. It would require that the officials of the concerned urban local

¹⁴World Development Report, 1983, Washington D.C., The World Bank, p. 92.

TABLE 6 TOTAL MONTHLY HOUSEHOLD BURDEN—SOME ALTERNATIVES FOR SLUM UPGRADATION

	Monthly charge/instalment (Rs.)		
	Alt. A	Alt. B	Alt. C
Public Facilities	9	9	9
Individual water supply	—	10	10
Individual toilet (complete)	—	—	30
Individual toilet (upto plinth)	—	14	—
Building loan	22	22	22
TOTAL	31	55	71
Feasible for households with monthly income	Above Rs. 500	Above Rs. 750	Above Rs. 1000

- NOTES: 1. Monthly charges for various facilities are based on Table 4.
 2. Monthly instalment for building loan of Rs. 2000 is estimated at an interest rate of 12 per cent for 20 years repayment period.
 3. Ability to pay per month is based on Table 2.
 4. Charge for public facilities includes capital and maintenance cost for roads, streetlights and footpaths.

body or development agency appreciate overall objectives of the scheme and see themselves as project managers aiming to implement the project efficiently. In other words, managers of these programmes would require administrative flexibility, experimentation and desire to work closely with the target groups. In many of the urban local bodies community workers are involved in various urban poor schemes such as health and child care, nutrition, and pre-school education. These workers can be trained to act as link between the slum communities and the implementing agency. However, community participation approach for this programme should not be viewed as conventional community participation work where it is generally used as a means to achieve a preordained goal by an external agency.¹⁵

The other key issue of the programme is replicability. It is necessary to view these schemes in the overall perspective of urban development. Though special units can be set up to plan and implement the projects, these units may not help in developing institutional capacity of the urban local bodies. These special units tend to give more emphasis on completion of the projects rather than developing a machinery which can take up such projects in near future. The separateness of the implementing units constitutes a shortcoming to the institutional building process.¹⁶ In one city of India, the slum

¹⁵W.J. Cousins, "Community Participation in Urban Development: Next Step", *Nagarlok*, July-September 1981, p. 10.

¹⁶D. Pasteur, *Management of Squatter Upgrading*, Farnborough, Saxon House: 1979, p. 155.

upgradation programme is being implemented by the state level Slum Clearance Board and the urban local body is only involved in maintenance of the schemes. This approach has tended to weaken the institutional base of the local body rather than strengthening it.

SUMMARY

Slum improvement schemes have been undertaken in India for a very long time. However, the emphasis of these programmes has been on provision of basic services in the slums and they are only ameliorative in nature. Slum Upgradation Programmes on the other hand, which allow a long term and more permanent solution, consistent with the principles of affordability, cost recovery are now being thought of by some cities. These programmes have been apparently successful in some large cities such as Madras. Some secondary cities are also now planning to undertake slum upgradation programmes. Despite the break-through in addressing the slum problems in some large cities, there are many issues in planning slum upgradation programmes for which there are no universal solutions. These issues will have different solutions for different cities. This paper on the study of planning slum upgradation schemes in two selected urban centres of India, has identified various such issues and has suggested guidelines to approach them. Important issues identified in the Paper are: (a) Investment decisions, (b) Role of external technical assistance, (c) Selection of slums, (d) Individual vs public facilities, (e) Land tenure, (f) Methods of cost recovery, (g) Feasibility of building loans, and (h) Management and replicability. It is felt that the paper would provide a base for planning slum upgradation schemes in India and other developing countries. ☐

*Legal and Illegal Plot Development: a Rationale for Illegal Subdivision of Land in Karachi**

PETER NIENTIED¹ AND JAN VAN DER LINDEN

A SUBSTANTIAL part of the metropolis of Karachi has come into existence through unauthorised occupation of land. This fact alone does not render Karachi a unique position among Third World cities, but what is peculiar is that unauthorised occupation has developed from 'ordinary squatting' into a sophisticated practice of illegal subdivision of government land.

Our aim of this article is to examine the characteristics of the system of subdivision, and to demonstrate that at present unauthorised subdivision occurs because the government does not provide any plots affordable for the poor. Finally, we will try to reason out why it is a system so expedient for all parties involved (the government included), that it has been the main supply mechanism of land to the urban poor during the past decades, and will continue to be so in the future.

This article is divided into three parts. In the first we will start to offer some background by describing Karachi's growth and shelter before we will discuss the nature of *katchi abadis* and especially the way in which they came into existence. In section 2 our attention will turn to the activities regarding development of low-income plots of the Karachi Development Authority (KDA). We will conclude that the number of small plots delivered to lower income groups is grossly insufficient, and that this deficit is a main reason for the ongoing growth of unauthorised subdivision of land and sale of plots to those who cannot afford the formal market price. In the third part of this article we try to answer the question why this system of illegal subdivision continues to exist, why it has become impossible for the

*Acknowledgment: Research in Karachi has been supported by WOTRO (The Netherlands Foundation for the Advancement of Tropical Research).

authorities to arrest it, and what the benefits and drawbacks are for the recipients of unauthorised plots.

KARACHI'S GROWTH AND SHELTER¹

Karachi is one of Asia's rapidly expanding metropolises. After Partition in 1947, when Pakistan attained political independence, the colonial port town became the focal point of migration, first of refugees from present India, and later of the many who could not make a living in Pakistan's countryside any more. This migration resulted in a population growth from 0.4 million in 1941 to 3.5 million in 1974. By 1981, Karachi's population was estimated to be between 5.5 and 7 million. The present annual rate of population growth is 5 per cent.²

Many of the migrants could not find shelter in Karachi. Initially, they—and especially the refugees—squatted upon open places in the city centre, where they built their provisional huts. Soon, however, the periphery became the area where many of the urban poor finally settled.

Besides population growth and the city's expansion, the government's role is an important factor determining informal solutions to the housing problem. Housing programmes, which the government framed from the fifties onwards, always lagged behind the enormous and increasing demand. Moreover, these programmes never reached substantial numbers of the poor for whom they were officially designed; in practice, such programmes mainly benefited middle and higher income groups. Generally speaking, the poor never got access to housing, land or credit. Structural solutions required to provide this access for the poor were never introduced. For a long time, government action in this field was limited to the destruction of squatter dwellings and providing forms of alternative housing which were out of the reach of the poor.

Thus, many were forced to devise their own solution. In many cases these informal solutions were condoned, both because there was no alternative and because many influential persons in the administration and in the politics had interests in extending their protection to the squatter settlements. Informal housing was further facilitated by the fact that most land in and around Karachi is in public hands. Moreover, the city's periphery consists for the main

¹This section is partly adopted and slightly revised from Nientied, P., Meijer, E., and Van der Linden, J., *Karachi Squatter Settlement Upgrading, Improvement and Displacement?*, Amsterdam, Free University, 1982, Institute for Geographical Studies and Urban and Regional Planning.

²Government of Pakistan, 1981, *Census Report of Karachi Division*, Islamabad, Population Census Organization, 1984.

part of idle lying desert land. Large tracts of this public desert land were occupied by squatters.

The local name for squatter settlements in Karachi is *katchi abadis*. There are over 200 of these settlements, not counting the 'minislums' and some 60 passively urbanized villages.³ Together, these ample 200 settlements cover an area of an estimated 14,000 acres and house over 2 million people.⁴

Katchi abadis are located all over the city, although some areas of concentration can be distinguished. Almost anywhere in the world, squatter settlements tend to be located in areas of second choice, e.g., in riverbeds, and at the periphery of the city. In Karachi, indeed, one of the areas where squatter settlements are concentrated, is alongside water courses. *Katchi abadis* on the periphery were also created in great numbers over the past 35 years. However, as the city grew rapidly, many of the formerly peripheral settlements find themselves right in the city by now, and new squatter settlements tend to be located even farther in the city's centre.

Living conditions in *katchi abadis* vary enormously. Over the years, some of these settlements have become very decent places with fairly good houses and a quite reasonable level of facilities. In other *katchi abadis*, practically all facilities are absent, and sometimes the housing stock consists of mere reed huts, or of double storeyed shacks made of wooden planks and tin sheets.

The main factor that determines whether a *katchi abadi* develops into a decent place to live or not, is security of tenure. This security does not necessarily have to be of a formal nature: *katchi abadis'* residents perceive some degrees of security when the government provides for certain facilities in their settlement. The provision of a community water tap can be regarded as a sign of a certain degree of recognition of the settlement on the government's part, which perceived recognition in its turn leads to the conclusion that the government is not likely to demolish the settlement shortly. When more facilities are provided for, the feeling of security increases and the *katchi abadi* dwellers mostly react by investing in the improvement of their homes. Settlements that do not manage to obtain some degree of informal security of tenure, stagnate in their development.⁵

³J. Van der Linden, *The Bastees of Karachi, Types and Dynamics*, Amsterdam, Free University, 1977.

⁴Government of Sind, *Development Plan for Katchi Abadis of Karachi*, Karachi, 1983.

⁵J. Van der Linden, *The Bastees of Karachi: the Functioning of an Informal Housing System*, in Schoorl, J., Van der Linden, J., and Yap, K.S. *Between Bastees Dwellers and Bureaucrats, Lessons in Squatter Settlement Upgrading in Karachi*, Oxford, Pergamon Press, 1983.

Squatting in Karachi is common in two forms which we call here 'unorganised invasion' and 'illegal subdivision'.⁶

Unorganised Invasion

Squatments that come about by unorganised invasion were the most common type when large scale squatting was a new phenomenon. During the days of Partition and shortly after, when hundreds of thousands of refugees had to shelter themselves, the most obvious method was to select a piece of vacant land and squat on it.

Typical of this method of settlement is the low degree of tenure security, at least in the initial stages. As a result, many settlements of this type have been uprooted, or as is the case with some 60 *katchi abadis* of this type, they are stagnating in their development since the residents are reluctant to invest in houses that may be pulled down.

Yet, another 80 squatments that came about by unorganized invasion have not only managed to survive, but have also seen the level of tenure security increase, so that all kinds of improvements to homes and environment could be, and indeed have been, brought about. It should be noted, however, that in many of these settlements, part of the security is derived from the fact that the land on which the squatments are built is not very much wanted by other (e.g., commercial) interests.

When we use the word 'unorganised', we refer only to the inception of the settlement. Even then, some forms of organisation may be there, e.g., the first settlers were relatives or had the same village background. What we mean by the expression 'unorganised invasion' is that neither protection, nor lay-out is organised in advance. By implication, initially, the squatters do not pay for their—moreover illegal and very insecure—tenure. Often, organisation takes shape very quickly. Informal leaders start inviting more families to settle, thus seeking some sort of security in numbers. Strong organisation is also needed to try and obtain protection for the settlement to lobby for the provision of facilities, etc.

Illegal Subdivision

Illegal subdivision of government land by private persons, although it was practised from the time of Partition onwards, has gained more and more application over the years. The main characteristics of this system are:

- (a) protection against eviction is guaranteed by leaders, who—in

⁶Cf. J. Van der Linden, *Squatting by Organized Invasion in Karachi: A New Reply to a Failing Housing Policy?*, Third World Planning Review 4(4), p. 400-412, 1982.

their turn—obtain protection from politicians and/or key persons in the administration. Although settlers do not get any documentary proof of their unofficial tenure rights, *de facto*, their tenure security is high;

- (b) the lay-out of this type of *katchi abadi* has been planned through the leaders, who mostly organise the provision of some basic facilities, such as water supply and transport;
- (c) settlers have to buy plots with money. Often, the first settlers pay a nominal price, depending upon location. By the time the subdivision gets inhabited, prices of plots rise, particularly of the (potentially commercial) plots which the leaders have reserved along the main roads.

The Two Systems Compared

Some main differences between the two systems have already been dealt with in the above. We will list them again to make their main characteristics explicit:

Security: A difference in tenure security is obvious, since illegal subdivisions are condoned by the authorities from their beginning. Sometimes, however, settlements created by invasions may attain a high degree of security in the longer run;

Location: There is a difference in location in two senses. Settlements which came about by unorganised invasion may be located in any place, including the city's central areas. Quite often, they can be found in areas of 'second choice'. Illegal subdivisions by definition are created at the outskirts of the city; very seldom they are in areas of second choice (such as riverbeds, etc.);

Function: There are some differences and similarities regarding the functions that both types of settlements perform. Evidently, in illegal subdivisions, the speculation element is much stronger than in the other type, although even here speculation is not completely absent either. Regarding the inhabitants, the picture is somewhat confused in a few respects. Both types of settlements provide rental accommodation to fresh migrants, so either type can be labelled as a reception area to rural-urban migrants. There is, however, some differentiation with regard to owner-dwellers, although this difference is far from an absolute one. Illegal subdivisions have a high security of tenure and they offer space and potential for all kinds of improvements to homes and environment. On the other hand, distances to places of work are long and expenses on transport sometimes weigh heavily on the family's budget, especially in newly created subdivisions in the periphery. In older, and more centrally located subdivisions,

land prices have risen enormously, also as a result of the high security of tenure. Therefore, people having no job security or poorly paid jobs, usually cannot afford to move to a subdivision. These subdivisions then are typically the residence of the consolidating poor, whereas the poor without job security or with lowly paid jobs, either remain tenants or become owner-occupant in unorganised invasion settlements as fresh squatters (which is hardly possible any more) or filling the places left by those better off people who have shifted to a squatment in the periphery;

Leadership and Organisation: Squatments created by unorganised invasion often have organisations for the settlement's betterment, in which dwellers strongly participate, especially in the initial stages, when often the settlement's very survival is being threatened. In illegal subdivisions, on the other hand, participation on the part of the inhabitants is often weak or completely absent. Those who have organised the settlement continue to act as middlemen between the residents and the government when further improvements are required. As by definition these middlemen are the ones who have access to the government machinery, there is little reason for the individual dwellers to actively participate in residents' organisation. Quite often, the inhabitants regard the middlemen as evil but unavoidable channels to the government since they lack something better—rather than viewing them as their spokesmen. Although the same frequency exists in settlements of the other type, here, organisations tend to be more democratic and participation more of a voluntary nature.

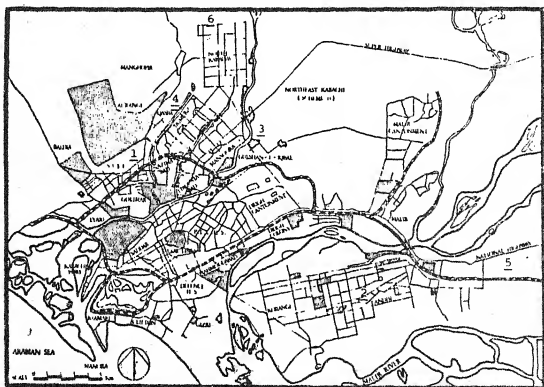
Frequency: Over time, there has been a shift in frequency of the two types. Some thirty years ago, unorganised invasion was very common, although illegal subdivision was also being practised already. But this second system became more and more important. Reasons for this include the—albeit unofficial—recognition of the system and even the participation of the authorities and influential persons. At the same time, many people living in unorganised invasion squatments saw their attempts to improve their houses and environment frustrated and were forcibly uprooted by the same authorities who protected the practice of illegal subdivision.

Development, Level and Speed: Illegal subdivisions have a high degree of tenure security, well-planned lay-outs which give ample opportunity for improvement, they have the authorities' blessings and are inhabited by—on an average—better-off section of the urban poor. It is little wonder then that illegal subdivisions develop quicker and attain a higher level of development than

settlements of the other type do.⁷

THE LACK OF LOW-INCOME PLOT DEVELOPMENT

In the previous section we had a detailed look at the informal systems of land development. In this section we will examine the part of the authorities regarding land development for the lower income groups in Karachi. We will confine our discussion of the development of plots in the following way. Only activities carried out after 1970 are considered, since our purpose is to show the current relation between a lack of plot development and squatting through illegal subdivision. We define low-income plot schemes as those schemes developed or planned by KDA which contain a certain proportion of plots of 120 square yards or smaller.⁸ After an



KATCHI ABADIS IN KARACHI, 1981

- Explanation:*
- 1 Metroville 1
 - 2 Metroville 2 (Landhi)
 - 3 Metroville 3 (Scheme 33)
 - 4 Metroville 4 (Qasba)
 - 5 Scheme 25 (Shah Latif Town)
 - 6 Scheme 41 (Deh Surjani)

⁷Van der Linden, *op. cit.*

⁸A KDA official states: "Only smaller plots (i.e., maximum 120 square yards. PN & J.V.d.L. were designed to match the paying capacity of the lower middle and upper middle target groups". This statement concerns the Metroville programme. [I. Mirza (1979), 'The Metrovilles in Karachi', *Newsletter Karachi Master Plan*, 6(12)]. This justifies our choice of 120 square yards as the upper limit of plot sizes for the lower income groups.

inspection of the schemes planned and announced, both paper planning and the actual field situation, it will become painfully clear that the number of plots developed is totally insufficient. First we have to consider the demand for plots from the low income groups. This can be calculated from the figures in Table 1. In Table 2 then an account of KDA's plot development activities is presented.

TABLE 1 POPULATION FIGURES AND DEMAND FOR PLOTS*

Population 1974	4.2 million
annual growth rate	5 %
household size new households	6 persons
housing units/plots needed	35,000
idem, for low-income groups	17,500*
Population 1984	6.3 million
population increase 1984/85	325,000 (5 %)
housing units/plots needed	52,500
idem, for low-income groups	26,250

*A rather conservative estimate.

TABLE 2 KDA SCHEMES FOR LOW-INCOME GROUPS SINCE 1970¹⁰

<i>Scheme</i>	<i>Year announcement</i>	<i>Total no of residential plots</i>	<i>Actually occupied per 10/1984</i>	<i>Remarks</i>
Metroville 1	1974	4,133	approx. 700	Plots sold in 1974 to lower-middle income group
Metroville 2	1980	4,379	approx. 2200	Plots used for settlement of Bihari refugees
Metroville 3	1979	3,260	2	Plots sold in 1979
Metroville 4	1979/80	3,867	0	Area is encroached upon in early 1980s
Shah Latif Town	1969/79*	43,891	1	15,000 plots sold in 1979, 10,000 in 1981 and 10,000 in 1983 (by ballot)
Deh Surjani	1980	51,000	0	Initially resettlement scheme, now middle-income scheme.

*Planned in the late 1960s, reactivated in 1979.

⁹Calculation based on figures mentioned in Government of Sind, *op. cit.*, footnote, 4, and Government of Pakistan, *op. cit.*, footnote 2.

¹⁰Sources : internal KDA documents; J.A. Khan (1984) 'Managing the government lands in Karachi to supply land for housing', Bangkok, Asian Institute of Technology, M.A.—Thesis; J.W. den Ouden 'Kennis on sociale interactie in overheidsbeleid'. Eindhoven, University of Technology, M.Sc.—Thesis. (1984); field work carried out in Karachi in 1984.

In the early 1970s KDA proposed to accommodate the growth of low-income households in sites and services projects, the so-called Metrovilles. The Masterplan for Karachi 1974-85 suggested to create 4 Metrovilles annually, either with open plot development or utility wall development. The first component was more important, "some 80,000 plots were foreseen for the period up to 1980 and an additional 36,000 by 1985", whereas the plots with utility walls would number 11,000 for the period up to 1980, and an additional 20,000 by 1985.¹¹ In fine, the master plan stated in 1974 that up to 1985, 147,000 plots were to be planned for the low-income groups. Residents of *katchi abadis* would benefit from the improvement and regularisation programme that would legalize tenure and improve basic infrastructure in the *katchi abadis*.

It can be concluded from Table 2 that the Metroville programme has become a failure in two respects: the number of Metrovilles is only a fraction of the number that was needed, and secondly, the existing Metrovilles are marked by a low occupation rate. Poor planning and administrative handling are two main causes; for example in Metroville 3 where more plots are sold to the public than can be accommodated, and where a part of the site selected for the Metroville is a long existing *katchi abadi*.

Shah Latif Town is a scheme that was planned in the late 1960s. At that time Karachi was considerably smaller, and Shah Latif Town was a township some 10-15 miles outside the city. Also because of bad experience with earlier townships far away from the city,¹² this plan was not pursued. At the end of the 1970s, the scheme was taken up again, because a growing demand for small plots had built up (but from politicians rather than the target group). KDA sold thousands of plots *via* computer ballot to the public (there were no income selection criteria), but it did not develop the area, so that plot owners have an idle parcel of desert land. Without proper lay-out and basic infrastructure they cannot start with the construction of their houses.

Surjani Town, located in the very North of Karachi, was announced as a scheme for the lowest income groups: low standards of infrastructure (so-called incremental development), and mainly 60 and 80 square yards plots. The major part of Surjani Town was reserved for households affected by the *katchi abadi* regularisation and improvement programme of Karachi Metropolitan Corporation (KMC).

¹¹T. Segaar, "The Karachi Master Plan and Housing the Poor", p. 139, in Schoorl, *et. al.* (eds.) *op. cit.*, footnote 5, p. 135-145, 1983.

¹²Cf. P. Nientied and S.I. Kalim, 'The Policy Constraint to Planning for land for the low-income groups in Karachi'. Paper presented at the 9th Intl. EAROPH Congress, Hong Kong, 1984; and K.S. Yap, 'Government Housing Policies for Low-income Groups in Karachi'. In Schoorl *et. al.* (eds.), p. 97-102 1983.

However, it appears that this basic goal is less and less adhered to: 10,000 plots are allotted to 4 construction who have started to build low-cost house. The minimum price of these houses (Rs. 41,000) is unaffordable for the low-income groups. Very recently a large parcel of land was allocated to a developer, who sells plots on the open market. Undoubtedly the people who can make the down-payment of Rs. 5,000 and afford the total cost of Rs. 26,000 (for a 120 square yards plot) do not belong to the low income groups.

It should also be noted that the plots of Surjani Town that will be used for the resettlement of shiftees from *katchi abadis*, do not enlarge the stock of small plots: for every plot occupied by a shiftee another plot has been cleared.

In fine, Surjani Town has no effect whatsoever to reduce the existing deficit of small plots for low income groups, nor will it have in the future.

In Table 2 the so-called Scheme 33 has been excluded. It is true that a substantial proportion of the plots in this new scheme measure 120 square yards, but these plots have been allotted to cooperative housing societies, who, in their turn, contract builders and developers. The minimum price of a built up 120 square yards plot is more than 2½ lakh, in other words, unaffordable for even the middle income groups.

When reconsidering the figures of Tables 1 and 2 it is perhaps hard to imagine for outsiders (but no less for many insiders) that such an extremely dismal list of performances can be compiled. But the accurateness of the statement cannot be denied by anyone who can see through the mask of KDA announcements and statements of policy performances.

It cannot be said that no low-income households have settled on plots developed by KDA, but this has occurred in schemes which were announced before 1970, and the number of plots in those schemes was already grossly insufficient to remove the then existing deficit.

A most intriguing question that emerged during the study of the situation described is: how is it possible that KDA can get away with such poor policy performances, especially so when it is considered that: (1) KDA has a considerable budget, and a well established apparatus, all skills are present among the 12,000 employees; and (2) the land KDA needs for the development of plots is owned by the state, and inter-departmental transfers are quite easy. Eighty per cent of the land in and around Karachi is government land, an extremely favourable situation which is unfortunately not exploited.

In the short space of this article we cannot give closely reasoned arguments to answer this question, We do hope to develop them after

a more elaborate analysis of the working of KDA. Moreover, our aim was to show the logic of the practice of illegal subdivision, and lengthy arguments would drift too far off perhaps. But a few remarks can be made; it appears that KDA is only interested in profitable enterprises: middle and high income plot development, commercial housing, large public works, etc. Add a severe lack of accountability, and insufficient control from higher tiers, and the fact that the urban poor are not in a position to exert any pressure on KDA, and a first few main reasons as to why this lack of policy implementation persists emerge.

What has gone hand in hand with the lack of KDA's development activities for plots for low-income groups? Indeed, growth of *katchi abadis*. Although there is a want of reliable statistics, the Government of Sind estimates that the population increase in *katchi abadis* is about 200,000 persons annually, every year 1,000 acres of government land are illegally occupied.¹³ Thus, our estimate in Table 1 of a demand of 26,250 plots for 1984-85 is quite conservative compared to the government's own assessment.

A RATIONALE FOR ILLEGAL SUBDIVISION

In this last main section we will address two sets of questions that arise from the discussion in the first and second section of this article:

1. Why does illegal subdivision continue to exist? We formulate the question differently into two sub-questions: (a) why is illegal subdivision so expedient a system in Karachi?, and (b) what would be the consequences of arresting it?
2. The second part of this section will try to answer the question whether this system is beneficial for those who receive a plot through this practice.

Under the presently prevalent circumstances it is most unlikely that the system of illegal subdivision will be arrested by the authorities. From four angles arguments can be put forth for this expectation.

1. The first is the political. The local government bodies would be under an obligation to develop (and not just sell and allot titles to plots that are merely 80 or 120 square yards parcels of undeveloped desert) a sufficient number of plots to accommodate the city growth. Assume that no plots are developed by illegal subdividers, and that the occupation of formally created plots for low-income groups would number 5,000 (already a much higher figure than emerged from

¹³Government of Sind, *op. cit.*, footnote 4.

Table 2. The demand for plots will increase from 26,250 for 1984-85 to more than 30,000 after a few years (on the basis of 6.3 million inhabitants in 1984, and an yearly growth rate of 5 per cent). Results of a few years without illegal subdivision and an insufficient number of plots developed, that can be thought of are: (i) increase of the price of vacant plots, that become even more unaffordable for low income groups; (ii) increase of the average household size, gradual overcrowding and increase of congestion, especially in the inner-city areas; (iii) emergence of shelterless families.

These consequences of arresting illegal subdivision without a compensation for the number of plots developed by this system are politically unacceptable in Pakistan nowadays.

2. From an economic point of view arresting the continuous operation of illegal subdividers' practice would have quite severe implications for the low-income groups in need of a place to live.

On a no-profit no-loss basis, and with some cross-subsidisation, KDA does not develop plots for less than Rs. 75 per square yard (1984 prices). Illegal subdividers can sell plots much cheaper, for: (1) they do not provide facilities, something KDA is bound to do, albeit at lower standards nowadays. In the case of subdivisions, arrangements for water *via* water tankers are at the settlers' expenses, transport through minibuses is only available when the bus owners consider an extension of their route profitable, sewerage is not provided, and so on; (2) because of the gradual development, subdividers need no initial to start the lay out and disposing of plots; (3) illegal subdividers can work cheaper in the sense that they have no bureaucratic apparatus that has to be maintained, no land registration, no balloting and administrative handling of allottees. Speculation by retaining plots from the market gives them huge profits.¹⁴

The argument that the authorities are deprived from a widening of their tax base is true, but not directly applicable: tax collection is not under the responsibility of KDA, the body is only amenable to the basic development. Thus, it is hardly an argument for KDA to arrest subdivision of government land. Given the lack of coordination between different government bodies,¹⁵ little pressure is exerted on KDA to take the argument of the tax base into account.

3. Arresting illegal plot development is not only economically not viable and politically unacceptable, but also legally impracticable. By means of a stay order (*i.e.*, an order that the situation cannot be changed as long as the case—is pending in the court). Once a stay

¹⁴J. Van der Linden, *Dalalabad: an Inquiry into Illegal Subdivision in Karachi*, Forthcoming, 1985.

¹⁵Cf. World Bank, *Pakistan, Sind Urban Sector Memorandum*, Washington; and Government of Sind, *op. cit.*, footnote 4, 1984.

is issued, the case can be kept pending for a long time.

The law enforcing authorities are not very willing to arrest subdivision, for they have strong interests in the continuation of the system. The lower government officials (police, lands department, councillors) are amenable to bribes, and what types of amounts or favours are received by the higher officials is anyone's guess. That the system cannot endure without the informal support of these officials has been made clear.

4. A final set of reasons, interwoven with the three mentioned above, is that illegal subdivision does not directly oppose vested interests. The land does not belong to the private sector, nor to KDA (encroachments on KDA land are cleared), and it is no prime land: its location is at the very fringe of the city. When no interests are threatened, both the bureaucracy and the formal sector seem to 'allow' a sector of informal entrepreneurs to operate.

What can be concluded from the discussion above is that many parties have benefits (ranging from bribery to a lesser burden of responsibility), that many difficulties would arise—which in their turn would be undertaken to stop illegal subdivision, and that unauthorised sale of government land does not oppose vested interests.

Our attention may now turn to the second question posed in the introduction of this section, *i.e.*, whether or not illegal subdivision is advantageous from the point of view of those who receive a plot through this system. We will confine ourselves to the category of buyers-occupants, those who acquire a plot because they need a place to live, and disregard those whose aim is speculation. It is clear that the category we are discussing consists in general of poorer households, those who are compelled to face all the inconveniences of living in the extreme periphery without adequate facilities.

The positive feature of the present system is that poor people can buy a plot for a not very high amount, and can gradually build their home. The point is that they have at least something.

However, there are serious drawbacks. The major one is that it may be true that they have something, but it is not very much. No facilities, no title to their land, and so on. Another drawback is that the settlers in new *katchi abadis* can be subject to milder or stronger forms of exploitation. Since they settled after the date that Martial Law Order has defined as the last date of regularisable occupation (January 1, 1978), the police, often in cooperation with KMC Lands Department, has a claim to make them pay something. If they refuse they are threatened, and once in a while a house is pulled down of an owner who refused to pay to set an example.

Also, settling after January 1, prevents the residents to make popular demands to the authorities, because they are considered to be

unauthorised occupants, and encroachers have no right to ask for something. The most they can do is to make polite requests on humanitarian grounds, in practice they are dependent upon middlemen.

CONCLUDING COMMENT

Section 3 of this article has discussed the 'logic' of the system of illegal subdivision, and we have tried to reason out why illegal subdivision will continue to operate in the future. The discussion has taken one issue more or less for granted, namely, that KDA keeps on failing to provide the number of plots required to accommodate Karachi's growth of low-income households.

It is not without reason to regard it as certain that this will happen: there is no sign as yet that any other scheme than those mentioned in Table 2 will be developed. No discussions are even taking place to start thinking about development of new schemes. The preparations of the new master plan for Karachi (1986-2001) have not concluded in any tangible result.

We think that this situation will persist as long as the present lack of accountability and the existing power structure will dominate the structure of KDA. For it is not the lack of skills or will on the planners side. However, to prove this requires a careful documentation and a more elaborate analysis of KDA, something beyond the scope of this article. ☐

Politics of Urban Transportation in Calcutta: Story of the Nationalisation of the Calcutta Tramways Company (CTC), 1951-76

AMARTYA MUKHOPADHYAY

TRANSPORTATION IS one of the most difficult urban problems in Calcutta. An analysis of how West Bengal Government set about solving this problem is important since it would throw revealing light on the quality of policy making in a crucial area. This paper seeks to find out to what extent government's policy of nationalising all forms of urban transportation¹ was pursued in respect of a major agency of urban transportation in Calcutta, *viz.*, the Calcutta Tramways Company (CTC). Political factors which stood in the way of realisation of this goal for nearly 18 years would also be pointed out to give an idea of the politics of policy-making in this area.

Even before independence the League government contemplated nationalising the Calcutta Tramways Company (a British Company running trams in Calcutta) and handing it over to a Passenger Transport Board² and this goal was accepted by the Congress government which was formed after independence in West Bengal. The government thought of creating a transportation service for West Bengal which would cover all forms of surface transportation, inland water transportation and even air transportation. Creation of a transportation board to "coordinate and facilitate the work of transport in the whole of West Bengal"³ also remained a goal.

¹For a discussion of government's policy of nationalisation of all forms of urban transportation, the motivating factors behind it, the operationalisation of this policy, and the problems faced in the process see Amartya Mukhopadhyay, "Politics of Urban Transportation in Calcutta: The Calcutta State Transport Corporation (CSTC), 1948-67", *Nagarloka*, XVI, 3, July-September, 1984, pp. 61-77.

²West Bengal Legislative Assembly Proceedings (WBLAP), Vol. 72, No. 1, 24.2.47, pp. 344-45; Vol. 72, No. 2, 12.3.47, pp. 111-13.

³WBLAP, Vol. 4, 21.9.51, p. 184.

IMPLEMENTATION OF THE POLICY OF NATIONALISING CALCUTTA
TRAMWAYS COMPANY

Deviation from the Goal and the Calcutta Tramways Bill, 1951

Curiously enough, a golden opportunity to nationalise Calcutta Tramways in 1951 was allowed to slip by. The Calcutta Tramways Company (CTC) was to finish their seven year term of operation in 1952, and had approached the government as early as in 1949 for a decision on the matter. The latter, however, referred the matter to the Government of India on the ground that it had the final say on it. West Bengal Government itself refrained from taking any decision on the matter till the proposed Passenger Transport Board, which was to take it over, was constituted⁴.

This unfortunately shelved the whole question. The Transport Board, a non-existent body on whom the burden of decision taking was placed, was not constituted and when time came for reaching a decision in 1952, government found itself totally unprepared.

By virtue of an agreement in 1879, with the Corporation of Calcutta and other parties, which led to the enactment of the Calcutta Tramways Act, 1980, this undertaking got a 21 years' guaranteed tenure of installing and maintaining tramways in Calcutta. The Corporation of Calcutta could exercise its option of purchasing the undertaking in the 22nd year, or every 7th year thereafter on payment of one and two fifths of the invested capital of the grantees⁵.

Subsequently, fresh agreements between the Calcutta Corporation and Howrah Municipality and the undertaking, sanctified by the Calcutta Tramways (Electric Traction) Act of 1900, and the Calcutta Tramways (Howrah) Act of 1905, gave the undertaking a further guaranteed tenure of 30 years and stipulated the purchase prices to be twentyfive times the average difference between gross earnings and working expenses for seven years immediately before the year of of purchase. The Corporation could buy the undertaking after January 1, 1931 or every seventh year thereafter.⁶

On January 1, 1952 the corporation could exercise this option of takeover. But neither the corporation, nor, despite its commitment, the government, did anything about it. Government gave many reasons

⁴WBLAP, Vol. 5, No. 1, 16.3.49, p. 217. Also see *Anandabazar Patrika*, March 17, 1949.

⁵Sisir Mitra, *A Public Facility, Its Management and the Workers : A Case Study of the Calcutta Tramways, Its Growth and Decay, 1939-75*, (Peoples Publishing House, New Delhi, 1980), pp. 1-2. Also see M.M. Singh and Abhijit Datta, *Passenger Transport Agencies in Metropolitan Calcutta* (Mimeo.) Calcutta Research Studies, Occasional Report, General Editor Leslie Green, Institute of Public Administration, New York, 1965, p. 41.

⁶*Ibid.*, p. 2.

in 1951 why they could not take the decision of takeover. But all of them were not very convincing. The first obstacle mentioned was a multiplicity of contracts. It was said that the agreements were entered into between the CTC on the one hand, and the Calcutta Corporation, the municipalities of Howrah and Behala, the Port Commissioners and the Secretary of State for India on the other. To take over the undertaking each of these contracting parties had to serve one year's prior notice. Since this had not been done and the dateline was already crossed, government sought to do away with this multiplicity of contracts by stepping into the shoes of the contracting parties by having an agreement with the Company directly.

Another reason why government did not contemplate immediate takeover was the exorbitant price stipulated by existing agreement. Yet, while take over was thus ruled out, a fresh agreement was necessitated by the fact that the existence of the option, every seventh year, to take over the undertaking created an atmosphere of uncertainty which was inimical to the development of the tramways.⁷ Government had, therefore, entered into a new agreement which it considered more beneficial to the people of West Bengal.⁸

The salient features of the new agreement, as pointed out by Dr. Roy were as follows: (1) the purchase price, now more reasonable, was definitely and unalterably fixed; (2) government took the place of the several contracting parties; (3) the company was given a fixed tenure of 20 years, but the appropriation of earning during the period was strictly regulated by the terms of the agreement; (4) provision was made for adequate renewals and replacements so that at the end of the guaranteed tenure the condition of the rolling stock and of other materials, carriage, etc., were reasonably satisfactory; (5) the company's shareholders were allowed to have a dividend of 4 per cent only.⁹

Government considered the agreement presently constituted better than the previous one on a number of grounds. Firstly, the purchase price, computed on the basis of the book value of the undertaking plus a 40 per cent increase and not on the basis of its market value, was £ 37,50,000. This was less than half the purchase price stipulated by the existing agreements, which, Dr. Roy pointed out, would have come upto Rs. 10 crores in Indian currency. The newly fixed purchase price would not have exceeded Rs. 5 crores.¹⁰

⁷WBLAP, Vol. 4, 18.9.51, "The Calcutta Tramways Bill, 1951", pp. 69-70; Vol. 4, 19.9.51, pp. 114-15.

⁸*Ibid.*

⁹*Ibid.*, p. 70.

¹⁰*Ibid.*, pp. 72-73. Twentyfive times the average difference between gross profits

Secondly, the agreement incorporated a clause which made it possible for the government to control CTC's decision-making without having to undertake any of the attendant responsibilities. This was because of the decision, as part of the agreement, to set up an Advisory Committee which would consist of two nominees of the government, two of the company, and a Chairman to be appointed by government in consultation with the company. The Advisory Committee was to concern itself with matter pertaining to any proposed extension of the undertaking that did not require increase in capital, alteration of routes, questions involving labour disputes, fare schedules and other matters. Government hoped that with the growth of new travel routes in newly developing areas of the city, control through the Advisory Committee would enable them to secure communication to any new area which they proposed to develop.

There were also other controls built into the agreement. A minimum sum of £80,000 was to be set aside each accounting year for a Renewal and Replacement Reserve Account. Government's hope was that if renewals and replacements were done properly the condition of the undertaking and of its tracks and cars would be same twenty years hence. Apart from this a sum of £87,457 together with the equivalent of 4 per cent interest on any additional outside share capital, raised with government's consent, after the date of this agreement, was to be set aside each accounting year in a fund called the shareholders' account, out of which all dividends and any amount necessary for servicing the debenture stock or for its repayment were to be paid. Finally, any balance, remaining after above expenses had been met, was to be credited to a special reserve account. This was expected eventually to accrue to the benefit of the state government, by reducing the purchase price, at the time of transfer to that extent. In the case of a transfer of loss to this account, against the credit standing in it, the company was bound by the terms of the agreement, though the final decision on such matters was reserved by the company.

The agreement also laid down priorities for the application of the company's revenues. They were listed in Art. 4 (1) of the Act. At the top was the obligation to meet all expenses of managing, maintaining and working the undertaking, and pay interest on the company's debenture stock. Next came payment of taxes in India

(Continued from previous page)

and working expenses, for seven years immediately preceding 1.1.52, the purchase price as per formula under existing agreements, works out to £ 79,94,314, even taking into account a negative difference of £ 42,253 for 1947. This was more than double the amount fixed by the new agreement. Computation made from Profitability Table of the CTC Ltd. (1939-65), Sisir Mitra, *op. cit.*, pp. 114-115.

and the United Kingdom. After these obligations were met the revenues could be applied according to the order followed in the last paragraph¹¹.

Government's decision of entering a fresh agreement can be best evaluated through eliciting answers to a set of three questions: (1) How strong were their arguments stressing the impossibility of immediate takeover? (2) Why did CTC authorities accept such an unfavourable agreement? Did the agreement also contain a few redeeming features? (3) What was the significance of this decision to put off takeover till 1972 for government's transportation policy as a whole?

Regarding the first point, government's argument that a multiplicity of contracts was an obstacle does not stand scrutiny. Having been approached by the company way back in 1949 government had got enough time before 1951 to remove this bottleneck by an appropriate piece of legislation. It "could also induce the contracting parties to serve the required one year's notice in time. The agreement of 1951 also was not a response, on the spur of the moment, to the problem, since the Director's Board had been striving for it since 1948¹².

Besides, it may be that the contracting parties did not serve the notice because government would not have helped them to take even the undertaking. As the directors of the company themselves had felt, "it had become apparent that the Corporation of Calcutta could not implement the terms of purchase, since the government would not assist them in raising the necessary funds"¹³.

The real reason behind refraining from taking over the company could be resource constraints and the consequent need of following priorities more rigidly. Arguably this could also explain government's reluctance to help finance any take-over by the Calcutta Corporation. The Government of West Bengal did actually express doubts whether take-over would have been wise even if it were possible, since the money required could be better utilized "in some other productive concern". The demands made upon the states' resources by West Bengal's contribution to the Damodar Valley Project, the Grow More Food Scheme, etc., did, according to the chief minister, advise against this investment. He wanted to strengthen his position by also pointing out that this takeover would have gone against the

¹¹WBLAP, Vol. 4, 18.9.51, pp. 73-74; Vol. 4, 19.9.51, pp. 116-17. Also see M.M. Singh and Abhijit Datta, *op. cit.*, p. 55.

¹²Private and Confidential Letter of the secretaries to the preference shareholders and ordinary shareholders of the company regarding proposed agreement with the government of West Bengal, quoted in Annexure 1 in Sisir Mitra, *op. cit.*, p. 224.

¹³*Ibid.*, p., 225.

Industrial Policy of the government of India, laid down in April 1948 and approved by the Planning Commission which had advised, for some time, expansion of the present activities of the state or concentration on new areas of production, rather than acquisition and running of existing units¹⁴.

While this argument is internally consistent the problem with it is that it could also be raised to question government's huge public investment to nationalise Calcutta's bus routes and the consequent displacement of existing operators. If a situation where 28 persons were owning 179 bus permits (6.4 owned by each on an average), plus perhaps some of the 169 buses held by the 10 absentee owners among 19, could be dubbed as one where "capitalistic interests" had grown up, necessitating their eradication¹⁵ the monopolisation of the entire tramway system of Calcutta by one company also should not have been tolerated for a further period of twenty years. What is more, the arguments against investment for taking over CTC, in the presence of more important development programmes which the government cited, closely resembled the legislative opposition's arguments in 1949 and 1950 against the launching of the State Transport Scheme¹⁶.

One gets the impression that the takeover was not accorded the same importance as the nationalisation of bus routes.

Government's agreement with the Calcutta Tramways Company can be viewed in another light. Why did the CTC authorities accept an agreement which brought down the purchase price, limited the rate of dividend to be paid to shareholders, planned for raising at least 25 per cent of the purchase price from the Company's own contribution in the Special Reserve Account¹⁷, and made an inroad into CTC's autonomy?

Government's explanation, which does not seem unlikely, is that the company desired a longer guaranteed tenure. Though given government's attitude, CTC authorities had reasons to be unafraid of the corporation's ability to make the purchase, the septennial option, apart from being an irritant, harmed the Company's ability to raise any additional loan or share capital, should this become necessary for improvements and extensions.

¹⁴WBLAP, Vol. 4, 18.9.51, p. 72.

¹⁵*Ibid.*, Vol. 17, No. 2, 20.6.57, pp. 569-70; Vol. 11, No. 2, 12.3.55, p. 712.

¹⁶Thus the thrust of the criticisms made of government transportation policy by Janab Syed Badaruddoja, Shri Ananda Prasad Chowdhury and Shri Anandi Lal Poddar was that government was "frittering away public money on ill digested schemes" like State Transport, while important development programmes were suffering from want of resources. See WBLAP, Vol. 5, No. 1, 1.3.49, p. 71; Vol. 5, No. 1, 11.3.49, p. 185; Vol. 1, No. 1, 23.2.50, p. 257.

¹⁷*Ibid.*, Vol. 4, 18.9.51, p. 74.

A long guaranteed tenure became even more covetable in the uncertain days after independence. The secretaries of the company showed the authorities' concern about the "considerable outcry that all public utility undertakings should be nationalised forthwith"¹⁸. The withdrawal of British political power made them feel protectionless and insecure in the face of this persistent demand, which was also reflected in the speeches of West Bengal's legislators in the Legislative Assembly, though here opposition members were more vociferous¹⁹.

The problem was aggravated by the stiff opposition of Calcutta Corporation to any proposal to increase fares, even when it was necessitated, in the company's view, by rising costs of wages and materials²⁰.

The Director's Board preferred an agreement with government for two reasons. First, they wanted to overreach an importunate Corporation of Calcutta, and secondly, they were certain that government, "whilst supporting eventual nationalisation would, in its reluctance to divert funds from higher priority projects, refrain from immediate takeover"²¹. This would have removed the danger to shareholders' interests if any sums spent on improvements were not remunerative for the full seven years, since in that case these would not have been fully reflected in the calculation of the purchase price. Under the existing agreement the company found itself, the corporation and government working at cross purposes and it looked forward to the proposed agreement as one under which "Government and the Company would be working with a unity of interests and complete cooperation"²².

As will be shown in the next section this "unity of interests" was a ruse, a tantalising prospect held out by the management of the undertaking, which was never realised, but had eminently served its purpose, viz., securing a long respite from uncertainty to fleece the company while before making it over to the government. The commercial editor of *Jugantar*, a leading Bengali daily, regarded the agreement as all but a trap which the company "persuaded the Government of West Bengal, by subterfuge and by suppression of

¹⁸Sisir Mitra, *op. cit.*, p. 224.

¹⁹See WBLAP, Vol. 4, 18.9.51 to 19.9.51, pp. 75-114, and 152-81, *passim*.

²⁰The argument of the Corporation against such increase was that the company was seeking thereby to increase its revenue in order to swell the purchase price to be calculated at the end of the next seven year period. Sisir Mitra, *op. cit.*, pp. 7-8.

²¹*Ibid.*, p. 224. As will be evident they were anticipating the arguments of government itself.

²²*Ibid.*, p. 225.

material facts about its omissions and commissions, to enter into"²³.

Regarding the third question, the significance of the deferment of the takeover till 1972 for government's transportation policy as a whole, it should be reminded that the decision was incompatible with government's transportation policy. As a consequence of government's inept execution and non-execution of its own decisions the main goal of government's transportation policy, nationalisation, remained unrealized. What is worse, government was using its failure to form the proposed Passenger Transport Board to justify its failure to nationalise Calcutta Tramways by pointing out that anyway it lacked "an organisation for running the concern, whether... a statutory body appointed by the Legislature or an ordinary and ad hoc body"²⁴.

Mutual Disillusionment Politics of Takeover of the Company

Government's intervention in 1967 to take the undertaking over had been necessitated by the blatant disregard, shown by the company for certain obligations imposed by the Calcutta Tramways Act of 1951. But it seems possible to argue that were it not for the change of government after the fourth general elections, and the coming to power of a leftist-led coalition ministry in 1967, nothing would have been done before 1972, when acquisition would have been due as per terms of the Act. The circumstances which led to this earlier-than-scheduled-date intervention are being described in this section.

In any case the "unity of interests and complete cooperation" which the CTC authorities hoped would ensure from the agreement²⁵ did not materialise. The secretaries of the CTC made a bitter reference to the "continuing battle between board and successive governments in Calcutta" and pointed out that ever since 1953 every proposal to enhance the fares to maintain the company in a good condition had been resisted by government for one reason or another²⁶. On the other hand, the Transport Minister of the previous Congress government complained in 1967 that the agreement "has been working like a halter round our neck"²⁷.

²³Statement of R.N. Roy Choudhury, Commercial Editor, *The Yugantar*, before the *Calcutta Tramways Inquiry Commission*, 1967 (Mimeo), Home (Transport) Department, Government of West Bengal (hereinafter to be referred to as Mallick Commission), cited in Sisir Mitra, *op. cit.*, p. 229.

²⁴WBLAP, Vol. 4, 18.9.51, pp. 71. The argument, however, is not very strong since a transport directorate had been created in May 1949, consisting of a Chief Accountant and Directors of Operation, Financial and Administrative Departments (WBLAP, Vol. 7, No. 2. 17.3.53, p. 1395). This could temporarily shoulder the responsibilities of running the concern.

²⁵Sisir Mitra, *op. cit.*, p. 225.

²⁶Letter to Shareholders, 17.5.67, *op. cit.*, p. 236.

²⁷WBLAP, Vol. 45, No. 1, pp. 287-89. Saila Kumar Mukherjee's statement.

It is not true, however, that government always stood in the way of a fare increase. Fare increases were allowed on three occasions after 1953, in October, 1959, April, 1964, and August, 1965.²⁸ While government's acceptance of a fare increase in 1953 was foiled by a political mobilisation of Calcuttans on a scale unprecedented for such a small issue, and by the adverse findings of a special inquiry commission report²⁹, government braved a resistance movement and political agitation of considerable duration and intensity after permitting the substantial fare increase of 1965. All the leftist and other opposition parties and tramway unions controlled by them joined in the resistance movement,³⁰ but government stood solidly by the side of the tramway authorities and maintained that the fare increase was not only justified, but essential to keep the trams moving³¹.

The last attempt before takeover by the tramway authorities to increase fares was, however, resisted by the government. The fare increase was said to have been necessitated by the loss of receipts owing to a strike for 44 days from 12 December, 1966, and another loss of receipts by 15 per cent owing to the introduction of private buses. The Congress government at the state had, the tramway authorities claimed, agreed to the fare increase but had requested them to put it off till March, 1967³² presumably to avoid taking an unpalatable decision before the general elections. But when CTC served notice of the fare increase in March, 1967 the predominantly leftist coalition government, which had come to power in West Bengal after the fourth general elections, declined to give immediate consent on the ground that sufficient notice was not given of the fare increase. Government's contention was that since tramway fare increases were "always fraught with dangerous consequences if the mood of the people is not cultivated in the proper way in advance . . . Government were entitled to greater notice in order to adopt suitable precautionary measures for the maintenance of law and order, if for no other reason"³³. Another argument offered by the government against

²⁸Sisir Mitra, *op. cit.*, pp. 12, 167, 237. Also see WBLAP, Vol. 38, No. 2, 17.2.64, pp. 276-79; Vol. 40, No. 1, 18.2.65, p. 593.

²⁹The findings of this commission were never published by government and was treated as "Privileged Document". Haripada Chatterjee, an M.L.A. of the Kishan Mazdoor Praja Party wondered if this suppression was due to the embarrassing findings of the report. WBLAP, Vol. 9, No. 1, p. 184.

³⁰For details of the fare increase see WBLAP, Vol. 41, No. 1, 8.11.65, pp. 317-18; Vol. 45, No. 1, 4.7.67, p. 363; Vol. 45, No. 2, 14.7.67, p. 284. For various manifestations of the resistance movement from High Court petitions to agitation see *Ananda Bazar Patrika*, July 26, August 8 and 19, 1965.

³¹*Ananda Bazar Patrika*, July 30-31, 1965.

³²Sisir Mitra, *op. cit.*, pp. 236-37.

³³WBLAP, *The Calcutta Tramways Company (Taking Over of Management) Bill*, 1967, Vol. 45, No. 2, 14.7.67, p. 284.

fare revision was that the company went back on its word, given in the agreement in July, 1967, of improving the second class coaches before enhancing second class fares and of reducing first class fare in one stage³⁴.

The fare revision, however, could not take effect as upon a petition by a few members of the Assembly, the Calcutta High Court issued an injunction on March 23, 1967 restraining the company from giving effect to its decision³⁵.

Meanwhile the government of West Bengal took another drastic step. Section 9 of the agreement leading to the Tramways Act, 1880 empowered the CTC to fix fares at specified rates but the government became convinced that "a situation in which the Tramway Company would revise its fares without consulting the late government should not be allowed to exist". The Calcutta Tramways (Amendment) Ordinance was promulgated on 11th May, 1967. It amended relevant provisions of the Tramways Act of 1880 to make government's prior approval necessary for any revision of fares. This amendment was unanimously made into an Act on June 27, 1967³⁶.

After the promulgation of this ordinance the Chairman of the CTC tried to impress the Transport Minister and the government that the CTC could not continue to run the trams with the existing fares as it entailed a daily loss of Rs. 13,000. But the government's position was that unless the findings of an independent tribunal were available on the financial condition of the undertaking, it would not be possible for the government to consider any proposal for fare enhancement. The suggestion for the institution of an inquiry commission was accepted by the Chairman of the CTC, on the condition that it would submit its findings within six weeks.³⁷

The findings of this enquiry commission, (appointed on June 12, 1967) and of a former enquiry commission³⁸ proved beyond doubt that the company also did not strive to make the concatenation of the interests of the CTC and the government a reality. For example both the De Commission and the Mallick Commission's reports considered the revenue of the undertaking inadequate, but neither thought this to be the only reason why the company's physical assets were kept in so bad a condition.

³⁴WBLAP, *op. cit.*, Vol. 45, No. 2, 14.7.67, p. 284. Also see WBLAP, Vol. 45, No. 1, 4.7.67 p. 363.

³⁵*The Statesman*, Calcutta, March 24, April 11-12, 1967.

³⁶WBLAP, Vol. 45, No. 1, 27.6.67, p. 61. Also see *The Statesman*, June 26, 1967.

³⁷*Ibid.*, Vol. 45, No. 2, 14.7.67, p. 285.

³⁸The first commission referred to Mallick Commission. The second is the Commission of Inquiry, Calcutta Bus and Tram Fare Structures, in terms of Decimal Coinage, Superintendent, Government Printing, WBG Press, Alipore, West Bengal, 1958 (popularly known as De Commission).

The De Commission had found ample evidence of a heavy backlog of renewals and replacements of tracks and cars, in spite of an extensive programme of overhauling or renewal of tracks that had been carried out during 1956 and the first part of 1957, which would have cost £ 9,61,000. The commission recommended a suitable fare increase for the completion of these renewals and replacements within six years, since the allocations under the Replacement and Renewals Reserve Account (£ 80,000 every year) would have fallen far short of the requirement, and there was not much scope for economy at the present level of expenditure. But one member of the commission, in a separate note, gave an important finding that while pleading inability due to lack of finance to carry out the renewal and replacement programme, the company had refrained from putting to use the balances in the Renewals and Replacements Reserve Account which were lying unused since 1950, and amounted to £ 359,032 in 1955. All the arguments of the company to show why these accumulations were not used were dismissed. The Company's contentions that sufficient liquid funds were not available, that the "money representing these reserve has been expended on stocks and stores and part of the balance of fixed assets mentioned" in their note, were not looked kindly upon by him. His position was that only when renewals and replacements needs were met properly and yet a surplus continued for years could such diversion of earmarked funds for the purchase of fixed assets be permitted.

This member of the commission also refuted the company's arguments that there was insufficient liquid money by pointing out that the cash balances which stood at £ 420,185 on December 31, 1955 exceeded the Renewals and Replacements Reserve Account, and that the explanation of unavailability of cash might constitute a valid argument for one year but not over a period. The existence of these paper reserves convinced at least one member of the Commission of the unjustifiability of the Company's claim that without a provision of £ 150,000 or £ 100,000 under this account the process of replacements could not be quickened.³⁹

The Mallick Commission too did not accept the company's argument that negligence of essential repairs, renewals and replacements was due only to inadequate revenue because of uneconomic fares.⁴⁰ The commission regarded the revenue of the undertaking as grossly inadequate and thought the gap between earning and expenditure to be considerable and almost impossible to bridge by improved collection,

³⁹*De Commission Report*, paras 22-28, pp. 56-59. Also B.N. Dasgupta's note, part II, pp. 168-71. *Mallick Commission Report*, para 4.8, p. 31.

⁴⁰For this argument see CTC's letter to Shareholders (28.6.67), cited in Sisir Mitra, *op. cit.*, p. 236.

better car utilisation or economies in expenditure. The shortfall (of Rs. 1.61 crores) was even expected to rise further if contributions to shareholders Account and other Accounts mentioned in clause 4 (1) of the 1951 Agreement were made.⁴¹

For the insufficiency of the revenue, however, the Commission blamed the company's negligence of the operational efficiency of the tramways and its failure to spend adequate sums on repairs, maintenance, renewals and replacements. By not spending these sums the company presented an unreal picture year by year that profits were being made, and appropriated to the various accounts mentioned in clause 4(1) of the Agreement, including even the Special Reserve Account for some years. The resulting fall in operational efficiency, measured in terms of passengers carried, average number of cars on road, and miles run per car per day from 1957 to 1967, was the main cause of declining revenue.⁴²

The commission found that the "magnitude of backlog of renewals and replacements is staggering". Overhauling of reserved and unreserved track that was essential, together with other renewals and replacements would have cost around Rs 243 88 lakhs. There was similar backlog in respect of overhead electrical equipment, rolling stock, etc.⁴³

The commission attributed the failure to make provisions for these to non-compliance with the priorities laid down in clause 4 of the agreement. In the agreement maintenance and renewals and replacements were given priority over Shareholders' Account and Special Reserve Account, and the commission accused the company of a clear violation of priorities for making appropriation to these accounts before making provisions for maintenance and repairs. According to the commission renewals and replacements could be given a still higher priority since the very first clause of the agreement which enjoined upon the company the task of paying all expenses of managing, maintaining and working of the undertaking, clause 4(1)(a), covered not only maintenance and repair expenses but expenses for renewals and replacements as well. Thus appropriations to shareholders Account and Special Reserve Account before making provisions of renewals and replacements constituted a breach not only of clause 2(4) but of clause 4(1)(a) as well. More so, because the commission, like the De Commission before it, considered it improper on the part of the company to spend only the sum directed

⁴¹*Mallick Commission Report*, paras 1.13 to 1.16, 2.12 to 2.14, 3.10, pp. 8-10, 19-20, 26.

⁴²For details of the decline since 1951, *op. cit.*, paras 2.5-2.10, pp. 14-18, Annexures 27 and 29, pp. 354, 361.

⁴³*Ibid.*, paras 4.9 to 4.12, pp. 32-33.

to be set apart and not use the accumulated reserve on the ground that the money was locked up in stocks and stores and not available in liquid form. Thus between 1951 and 1965 £ 1,027,349 accumulated under the Shareholders' Account; and the Renewals and Replacements Reserve Account accumulations stood at £ 2,94,964 while all the physical assets of the company was in such obvious bad repair⁴⁴.

The company also did not fulfil some other obligations of the 1951 agreement. The Special Reserve Account was designed to enable government to raise funds for the purchase of the undertaking, though this was not explicitly stated in the transfer agreement⁴⁵. Total amount deposited to this Account upto 1955 was £ 1,18,468, and this was considered meagre by the De Commission, who suggested a greater allocation⁴⁶. But after 1955 nothing was directly set apart to this account. On the contrary in the three years from 1956 to 1958 £ 1,31,801 were transferred from this account to the Shareholders' Account and other accounts. The total withdrawal was £ 13,333 more than the actual direct deposit.⁴⁷ And were it not for the refund of £ 1,11,351 on account of excess profits and income tax no longer required to this account from 1954 to 1957⁴⁸, the account would have shown a negative balance.

Since the company could lay its hands on these accumulations only in the event of a 'loss' and failure to make appropriations to Shareholders' Account out of the profits in any year could not be construed as 'loss', the Commission completely disapproved of this transfer⁴⁹.

It would be advisable to find out what steps were taken by the Government of West Bengal to prevent the violations of the 1951 agreement by the company. It was clear that the company was not conceiving the undertaking as an institution that was to survive beyond 1972. Of the 289 cars built by them since 1931, only six were built after 1951. From April, 1958 the renovation schedule of the cars was changed from two years to three years, to "effect every possible economy". Although a Special Tribunal had in 1959 allowed a fare increase to the extent demanded by the Company the previous inspection schedule was not reintroduced even though the Chief

⁴⁴For details of the decline since 1951, *op. cit.*, paras 4.14 to 4.19, pp. 35-39.

⁴⁵*Ibid.*, paras 5.3, p. 41. Also see WBLAP, 18.9.51, pp. 73-74, 19.9.51, pp. 116-117.

⁴⁶*De Commission Report*, paras 10-14, pp. 51-53. *Mallick Commission Report*, paras 5.3-5.4, p. 41.

⁴⁷*Mallick Commission Report*, para 5.5, p. 42.

⁴⁸*Ibid.*, para 5.3-5.4, p. 41.

⁴⁹*Ibid.*, para 5.6, pp. 42-43.

Engineer of the Company strongly recommended it.⁵⁰

Similarly a loan of Rs. 6 lakhs, obtained from the United Bank of India by the Company in 1967 (though sanctioned by the government of West Bengal long before on May 10, 1965) for the installation of a new substation and purchase of additional power cables and new cars was not used for these purposes at all. Of the loan money Rs. 8,82,594 were rather smuggled out to London, shortly before takeover, in two instalments in March and May, 1967, in the guise of remittable profit in India for the year 1956. This was done at a time when the company was complaining that it did not have sufficient resources to keep the tracks in proper condition and shortly before the company gave notice that it would not be able to pay the employees their wages.⁵¹

Throughout the period from 1951 to 1967, generally, and after 1959 specially, government stood a passive spectator while the company was systematically rendering the undertaking 'sick', even though as early as in 1958 the De Commission urged government to take active interest in the proper maintenance of its assets.⁵² The Mallick Commission observed that except in the years 1961 and 1964 there was not even any annual inspection, and nothing was done to compel the company to clear the backlog of renewals and replacements⁵³. The upshot of all this, according to the commission, was that at the time of sale in 1972 or after, government would be buying an undertaking which had become rotten to the core.⁵⁴

The commission's explanation of this detachment was that government was preoccupied and absorbed with building a fund to acquire the undertaking that it overlooked the poor maintenance of the company's assets⁵⁵. A former transport minister's lament that the agreement frustrated every attempt to assess the condition of this fund⁵⁶ would prove that the diagnosis was correct.

Take over of the undertaking in 1967 was forced on the government by the behaviour of the company itself. On 8th November, 1965, the Transport Minister informed the Assembly that he had no plans to nationalise the tramways.⁵⁷ Though only eight days later he contradicted his own words to say that steps had been taken to

⁵⁰Affidavit by R.N. Roy Chowdhury, and Written Statement of the Chief Engineer, the CTC Limited before the Special Tribunal, cited in Sisir Mitra, pp. 159-61.

⁵¹Mallick Commission Report, paras 5.7, 5.19, pp. 43-50.

⁵²De Commission Report, part II, p. 170.

⁵³Sisir Mitra, *op. cit.*, pp. 172-73, 176.

⁵⁴Mallick Commission Report, para 4.16, p. 36.

⁵⁵Sisir Mitra, *op. cit.*, pp. 172-73.

⁵⁶WBLAP, Vol. 45, No. 2, 14.7.67, pp. 287-89.

⁵⁷*Ibid.*, Vol. 41, No. 1 8.11.65, p. 318.

nationalise the tramways as early as possible (and the inconsistency had been pointed out by an RSP member),⁵⁸ the tramway authorities themselves said that two offers to the Congress government to take over the undertaking in 1966 and 1967⁵⁹, since the running of it has become the sport of politicians, had been turned down.⁶⁰

After 1967 matters were brought to a head, since the United Front government's opposition to the fare increase, promised earlier by the Congress government, and CTC's conviction that this government will never allow a substantial fare increase⁶⁰ made them unwilling to wait till the findings of the commission were available. The CTC authorities sent a cable to the Deputy Chief Minister on July 3 that they would be unable to pay the wages of the employees due on July 7, since their bankers refused to give any additional overdraft unless the same was guaranteed by the government to the tune of Rs. 20 lakhs, and there was an immediate interim increase of fares, to convince the bankers of their paying capacity.⁶¹ Government, however, agreed to guarantee an overdraft to the extent of Rs. 11 lakh only. the total payroll of the company and ruled out any interim increase of fares. That government was kept in the dark while the representatives of the company and the bankers were called to London for discussions, and that workers were served with a barely 48 hours' notice of non-payment while officers had drawn their wages, only served to make government resentful. The President's assent to the takeover was sought,⁶² and on 14th July the takeover of management Bill was brought before the House, since the company's reply was that it would not accept further overdrafts unless its revenues were adequately increased. Government considered it impossible to assume the responsibility of paying the wages of workers without taking over control and management of the company.

The takeover of management of the company was one of the few measures taken by the government where government and opposition were of one mind. The British government sent a representation disapproving of the steps taken by West Bengal government which was handed over to the Deputy Chief Minister.⁶³ The Transport Minister of the preceding Congress government reacted strongly against this wide memoir. Cancellation of the 1951 agreement,

⁵⁸WBLAP, 15.1.65. pp. 737-38.

⁵⁹Letter to Shareholders 28.6.67, cited in Sisir Mitra, p. 238.

⁶⁰*Ibid.*, p. 239.

⁶¹WBLAP, Vol. 45, No. 1, 4.7.67, pp. 362-63; Vol. 45, No. 2, The CTC (Taking Over of Management) Bill, 1967, 14.7.67, pp. 285-86.

⁶²*Ibid.*, Also see WBLAP, Vol. 45, No. 1, 6.7.67, p. 499.

⁶³WBLAP, 14.7.67, p. 286.

acquisition of the Company even without payment of compensation were demands that arose both from government and opposition benches. The Bill was passed unanimously⁶⁴.

The undertaking was at last nationalised on November 8, 1976 through an ordinance which was later replaced by the Calcutta Tramways Company (Acquisition of Undertaking) Act, 1976. The Act provided for the payment in cash, of Rs. 2,18,00,000 as purchase price. Besides, all the liabilities of the company in relation to its undertaking which had vested in the state government under section 3 was to be met from this amount. Even more ruthless was the stipulation that in meeting the above liabilities the City Court (where the compensation money was to be deposited) would distribute this amount "amongst the creditors of the company, whether secured and unsecured, in accordance with their rights and interests, and if there is any surplus left after such distribution, amongst the contributors of the Company" according to their rights and interests".⁶⁵

CONCLUSION

The foregoing discussion will show the extremely incremental nature of government's policy making. The arguments for refraining from nationalising the company in 1951 have been shown to be unconvincing. This decision also did not fit in well with government's sincere efforts to nationalise bus transportation in Calcutta between 1955-61⁶⁶. 'Curiouser' is the fact that shortly before taking over the company in 1967 the government had thought it proper to denationalise the bus routes of Calcutta.⁶⁷ Thus government monopoly of surface transport in Calcutta never became a reality. What is more, government's indifference to implementation of the terms of the Calcutta Tramway Act, 1951 by the company, and the advantage taken by the company of this lapse, led to such a decline in its operational performance that the resultant additional strain on the Calcutta State Transport Corporation might have been one of the numerous factors which made denationalisation of bus routes necessary. If, as claimed by some people, the decision not to nationalise the Company in 1951,

⁶⁴WELAP, 14.7.67, pp. 287-89, 290, 293-296, 298-306. MLAs of the Congress, CPI, CPI (M) and Bangla Congress supported the Bill.

⁶⁵See Sections 2 (a), 6 (1), 6 (2), 6 (3), The Calcutta Tramways Company (Acquisition of Undertaking) Act 1976, The Calcutta Gazette Extra-ordinary, No. 15 (III) part III, 6.1.77, Government of West Bengal, Legislative Department, WB Act, LIV of 1976, pp. 31-33.

⁶⁶See Amartya Mukhopadhyay, *op. cit.*, pp. 69-70.

⁶⁷*Ibid.*, pp. 70-73.

was motivated by the desire to pander to the interests of big Indian shareholders who were close to government at the time⁶⁸ then subsequent governments and the people of Calcutta had to pay the exorbitant price for it. □

⁶⁸Sisir Mitra, *op. cit.*, pp. 174-75.

Municipal Taxation in Karnataka: A Review

M. NAGESWARA RAO

EVER SINCE local self-government concept was introduced in the country about a century ago, they have all the time been sailing in rough weathers and thus, neither they reached a comfortable take off position nor have struck deep roots. More so in the case of urban local governments, since, in spite of the fact that the principles of local self-governance are more pronounced and logically suited to them, they are given low priority compared to their rural counterparts. Ironically, even after such observations have been made earlier by almost all enquiry commissions and committees and expert groups¹ which went into details, concrete measures were never taken up to revamp these local governments to make them really self-governments. On the other hand, at least 25 to 30 commissions/committees/panels/study teams/task forces constituted² under one pretext or the other, with majority of members being mostly elected representatives and administrators with little or notional representation to expert academicians, submitted their bulky reports dealing with the subject of local self-governments either directly or indirectly at the national or state levels. How far their recommendations were implemented are well known to all. In fact, these reports have been used more frequently by academicians than policy-makers.

The addition of the *Report of Karnataka Taxation Review Committee, 1983* (hereafter 'Committee') in three parts is, however, different in many ways. In spite of unconvincing and disputable observations and seemingly biased towards state government, it differs significantly from others, including *Karnataka Municipal Finance Enquiry Committee* (MFEC, 1975) in its constitution and composition, scope and

¹For an interesting discussion, see, *Improving City Government*, Proceedings of a Seminar, September, 1958, Indian Institute of Public Administration, New Delhi, 1959.

²As compiled from Virendra Kumar, *Committees and Commissions in India, 1947-73*, and from other sources.

coverage, brief but precise observations, constrained but practicable and realistic approach and in its recommendations in the existing circumstances.

A critical examination of the observations and recommendations of this Committee on local government in Karnataka is attempted in this paper emphasising and elaborating certain issues wherever warranted.

CONSTITUTION, COMPOSITION, SCOPE AND COVERAGE

The Committee under the chairmanship of R.M. Honavar is second of its kind next only to the *Mysore Taxation and Resources Enquiry Committee, 1969* under the chairmanship of S. Bhoothalingam. The present Committee Report, submitted as Part II, *Report on Local Finance*, is a part of its review of the "structure of taxation in the State and Local Bodies and to make recommendations for the mobilisation of additional resources for planned development apart from suggesting measures for the rationalisation of the state's tax structure wherever necessary" (p.1). An interesting aspect of the Committee is that it has been constituted with the majority of academicians as members, including the chairman, in contrast to the earlier committees which used to have lone representation of this community. But, contrary to the expectations, this Report has been made more policy oriented, which it should be, than academic and research oriented.

Though the scope, terms and conditions are limited, the Committee has gone into almost all details of prime importance of urban as well as rural local bodies. It has made its recommendations keeping in view the constraints and limitations of state fiscal problems and recommendations made thereof (Part I), unlike the other full-fledged enquiry/committee reports which deal, by and large, in isolation leading virtually to the extent of non-acceptance of their recommendations by the state governments.

The Report is organised in thirteen chapters and the observations and recommendations are brief but precise with an introduction (Ch. I), the status and role of local bodies (Ch. III); various sources of revenue, property tax, other taxes, abolition of octroi and its alternative sources (Ch. IV to VII); financial relations of state and local bodies (Ch. VIII to X); other general recommendations (Ch. XI); financial implications resulting out of their recommendations (Ch. XII), and a summary (Ch. XIII) followed by relevant data in Appendices.

ROLE OF LOCAL SELF-GOVERNMENTS

With a brief introduction to the local self-government in Karnataka, the Committee has pointed out that the role of local self governments is not upto the expectations³ for various reasons. One such reason, as the Committee has listed, is that the local bodies are not performing all the obligatory as well as discretionary functions entrusted to them and they cannot do so because of inadequate funds (p. 6).

The Committee's observation is, however, not revealing as it is as old as the local bodies. But this can be substantiated further from other sources of information⁴ that about 83 per cent of major (above 50,000 population), 94 per cent of medium (between 10,000 and 50,000 population) and 97 per cent of small (below 20,000 population) municipalities are not performing most of the obligatory and discretionary functions as listed in the Municipal Act, which are quite considerable and almost exhaustive in view of the local needs.⁵ It is also noted that if the major municipalities are committed seriously to perform the obligatory functions alone, they require funds, two to three times higher than their present revenue.⁶ It is in this unresolved dilemma that the state government resorted to take over some of the traditional functions such as primary and secondary education, water supply and drainage, some branches of health in the case of urban local bodies and payment for street lighting in the case of rural Panchayat institutions (p. 7).

Another point on which the Committee made a comment is the role of selected councils versus the state control of municipal administration. For years together, most of the local bodies in the state were either under state control or elections were postponed for various reasons. The Committee strongly felt that such a situation should not be repeated in future and urged the state government to "restore these institutions to the elected representatives of the people as early as possible", stressing further that "such a step would be desirable both from the point of view of ensuring satisfactory fulfilment of

³The experiences of most of the countries too are in no way better. For example see, Kaiso Hanauka (ed.), *Comparative Study on the Local Public Administration in Asia and Pacific Countries*, EROPA Local Government Center, Tokyo, 1984; Roy Bahl (ed.), *Urban Government Finance: Emerging Trends*, Sage, Beverly Hills, 1981 and Sharpe, L.J. (ed.), *The Local Fiscal Crisis in Western Europe*, London, Sage, 1981.

⁴M. Nageswara Rao, "Studies in Urban Public Sector", New Delhi, Ashish, 1985, p. 105.

⁵S.M.Y. Sastry, "An Analytical Assessment of the Laws that Govern the Functions of the Municipalities in Karnataka", *National Workshop on Hospet and Its Environs—2001 AD*, Bangalore, 1982.

⁶M. Nageswara Rao, *op. cit.*, p. 100.

local needs and of promoting larger national interests" (p. 8). As a coincidence, the new government which was formed in 1983 after the assembly elections, had given priority and conducted the municipal elections. Thus, these institutions were "restored to the elected representatives of the people".

FINANCIAL POSITION

While commenting on the financial position of local bodies, the Committee observed a peculiar situation of large budget surpluses of the Bangalore City Corporation which constituted about one third of its total revenue. The Committee has opined that such a large surplus of Bangalore City Corporation was because "(i) the capital works of any significant size were not undertaken by the then Administrators, as they did not wish to deny future elected representatives the opportunity of choosing appropriate works, and (ii) the boundaries of Bangalore City Corporation have expanded rapidly in the past few years. While the latter has led to an increase in revenue from the new extensions, it has not led to a corresponding increase in expenditure items like roads and street lighting" (p. 9). The latter justification is not really correct in the sense that the boundary limits of Bangalore City were last extended only in 1969 by including some layouts 'developed' by the then CITB and not in the recent past as observed by the Committee. It is also pertinent to notice that the revenue realisation from these new layouts as well as the earlier (1963-64) extensions of the city by including 32 villages was very negligible due to various concessions and reduced tax rates extended to them⁷. In the case of capital works during the period of administrator, the views of the Committee appear to be onesided. When the revenue and public works officials of the Corporation were approached and asked to explain, they mentioned that in the absence of political pressures, revenue collections were improved substantially, expenditures on capital works, repairs and maintenance were made very judiciously with minimum costs; and hence low expenditures and high surpluses. In any case, the aspects of administrator versus popular councils require thorough probe to arrive at any conclusions.

The Committee's remark on the increase in establishment charges of urban government is noteworthy. It appears that the Committee was not too happy with the demands for higher wages and salaries of municipal employees commensurate with their counterparts stating that such a trend "does not augur well for local finances" (p. 10). If the trend continues, and the agitation of the municipal employees for

⁷M. Nageswara Rao, *op. cit.*, Chapter 6, p. 118.

their treatment on par with the state government employees is adopted, the Committee felt that such a phenomena "restrict the ability of local bodies to increase expenditure on necessary services" and "the state of municipal finances would be more parlous than what it is today" (p. 10). On this issue, one has to be reminded of certain in-built anomalies in civic service delivery systems. The municipalities and their functions particularly public health activities are traditional and labour intensive⁸. Consequently, the wages and salaries alone constitute 33 per cent, 44 per cent and 47 per cent in the budgets of major, medium and small towns respectively⁹ (and not 28 per cent on an average as arrived at by the Committee) and hence there appears to be nothing wrong to demand fair wages and salaries on the part of employees as a section of public servants. What is perhaps required is a shift from labour intensive to sophisticated service delivery system in urban services, since, at local public level, employment generation should not be taken as one of the objectives.

FINANCIAL RESOURCES

Not satisfied with mere comparative analysis of expenditure and revenue to examine the resources and allocations which do not indicate their needs, the Committee attempted an unsuccessful exercise with the norms of *Zakaria Committee Report, 1963* on civic services to examine the resources needs of the urban local bodies. However, such exercises were already attempted elsewhere¹⁰ and their results made everyone to feel that attempting to achieve such levels is beyond the scope and imagination of local bodies in any state. The Committee too, after the exercise, felt and came to the conclusion that "nothing more than deriving some consolation from the fact that such a situation is prevalent not only in Karnataka but almost all over the country". (p. 15).

The main source of revenue of local bodies being Property Tax, the Committee discussed at length the existing system of the Property Tax and various problems involved in assessment on the basis of ARV and other alternatives. Being aware of the consequences leading to the

⁸For example, see Government of Karnataka. *Report of the Committee on the Improvement of Living and Working Condition of Sweepers and Scavengers*, Bangalore, 1976.

⁹M. Nageswara Rao, *op. cit.*, Ch. V.

¹⁰For example see, S. Rama Rao, and M. Nageswara Rao, "Urbanisation, Its Impact on Present and Future Urban Public Service Systems by 2001 AD", *Nagarloka*, Vol. XI, No. 1, Jan.-March 1979; and with a slightly modified methodology, Government of India (Planning Commission), *Task Forces on Housing and Urban Development—Part II, Financing of Urban Development*, New Delhi December, 1983.

shift from ARV to any other mode of assessment, the Committee felt comfortable to recommend the continuation of the present ARV system itself. However, as its own contribution, the Committee has suggested to introduce a system of gradation and an element of progressivity in the tax rate, such as: differential rates to 'owner occupied' and 'rented out' houses on the basis of three classes of plinth area (p. 32-33). This suggestion as prevailing in some states in different forms, is worth introducing in Karnataka also.

It is also noteworthy that the Committee has strongly differed with TREC, 1969, and suggested that "the rents fixed by the Rent Controller should not necessarily be the basis of the ARV of rent controlled properties" and also "ARV should be delinked from the controlled rent and should be decided on the basis of the economic and prevailing rent in the market" (p. 33). The controversy between legislative provisions of Rent Control Acts and Municipal Acts and Bye-laws on property assessments are still continuing with conflicting interpretations and court judgements and unless some appropriate amendments are enacted, the issues could not be satisfactorily resolved.

The observations and recommendations on: (i) tax concessions to certain classes of owner occupied properties, etc., (ii) constituting a Central Valuation Agency, (iii) duration between two tax assessment revisions, (iv) taxing public properties, and (v) tax administration procedures (p. 34-36) are, however, not new to the readers.¹¹

While recommending to retain some minor taxes either in their present form or with minor changes in tax rates, the Committee's recommendation to abolish Shop Tax is rather surprising. The Committee put forth the argument that the state government is already levying Profession Tax and in addition to this, the Shop Tax "amounts to double taxation" (p. 40). On the contrary, the earlier two committees (MFEC, 1975, and TREC, 1969) observed that the Shop Tax was not exploited properly and to the maximum extent by the urban local bodies. As distinguished between Income Tax and Profession Tax in *Kerala Report*¹² on similar grounds, a Shop Tax levied on the basis of higher turnover or location or plinth area be introduced with an element of progressivity and such tax should be left to the local bodies (MFEC 1975, p. 43-45 and p. 58). It should also be remembered that minor taxes like taxes on animals, carts, pilgrims, etc. would bound to vanish in the course of changing urbanisation—and business estab-

¹¹For example see, Abhijit Datta (ed.), *Property Taxation in India*, New Delhi, IIPA, 1983.

¹²Government of Kerala, *Report of the Municipal Finance Commission*, Trivandrum, 1976, p. 94.

ishments would take their places¹³. Under these circumstances, taxing a growing and fertile source of revenue is better than taxing a dying phenomenon. Even if the Shop Tax and Profession Tax become double taxes, the Shop Tax can be retained with the local bodies and Profession Tax can even be reduced or exempted from Profession Tax to the extent of Shop Tax. To facilitate such imposition the *Karnataka Municipal Act 1964*, has clearly made a separate provision [Section 84 (XI)]. However, the *Karnataka Municipal Corporation Act 1976* has no such provision but included along with tax on professions, trades and callings. But the corporations in the state are collecting annual shop licence fee on the basis of 'class' categories.

ABOLITION OF OCTROI

The Committee did not make any comment or observation on the abolition of octroi in the state in 1979. Contrary to the recommendations of conditional abolition of octroi by numerous enquiry committees, the state government had abolished octroi without making any alternative source of revenue to the local bodies. This led to financial crisis not only to urban bodies but also to the state government. The state government, however, has made an interim arrangement by paying a compensatory grant to the extent of the octroi revenue with 5 per cent annual growth to the local bodies which were collecting octroi at the time of abolition. As reported by the committee, the state government intended to make good the loss of octroi revenue in three forms (p. 42):

- (a) a surcharge of 10 per cent on Sales Tax;
- (b) bringing textile, sugar, tobacco and tobacco products under the purview of newly introduced Entry Tax at the rate of 2 per cent; and
- (c) Surcharge of 10 per cent on Motor Vehicles Tax.

However, while the introduction of Entry Tax ran into difficulties, the other two sources were not implemented.

Under these circumstances, the Committee felt that the local bodies should not be deprived of their legitimate revenue source and hence, the compensation given to them should be available with 10 per cent annual growth rate, and be disbursed on monthly instalments to reduce the 'liquidity problem' for their day to day activities (p. 43).

¹³For a discussion on these taxes see, Roy Bahl, Daniel Holland and Johannes Linn, "Urban Growth and Local Taxes in Less Developed Countries," *Papers of the East-West Population Institute*, Honolulu, September, 1983.

On part of the state government, the Committee strongly felt that the schedule of Entry Tax should be extended to some more products, and tax rate should be raised from the reduced 1 per cent to 2 per cent status (p. 44). Also, in this regard, it is interesting to observe the Committee's cautious approach on centralisation. It has pointed that "the Entry tax is a means of raising revenue for the state government and that there is no direct link between it and the octroi compensation grant, as the latter is paid out of the State Government's consolidated Fund" (p. 44). In this context, as argued elsewhere by one of the members of the Committee on sharing the Sales Tax receipts with the urban local bodies as an alternative is worth considering.¹⁴ He argues that "the state governments should be compelled to share at least 5 per cent of the net yield from sales tax collected from urban centres (to start with from the state capital and major cities in the state) with the urban local governments" on the valid ground that more than 50 per cent of the Sales Tax yield is contributed by such major cities alone in the states. For example, in Karnataka, Sales Tax collection in Bangalore City alone during 1982-83 was about 56 per cent of the total tax collection in the state.¹⁵

SHARING OF TAXES

In Karnataka, 'Entertainment Tax' is levied and collected by the state and the net proceeds are transferred to the concerned municipalities. The Committee had earlier recommended under tax rationalisation formula (in its first Report) to merge the three tax components—viz, Entertainment Tax proper, surcharge on Entertainment Tax and additional tax, revise upwards and assign 35 per cent of the total tax to the local bodies in whose jurisdiction the tax is collected. Though there are no serious problems, the Committee had made this recommendation which perhaps would serve two purposes: reducing the tax complications and benefiting the local bodies which will get "a sum larger than what they are receiving" (p. 45). This recommendation appears to be in right direction which does not harm either of the two levels of governments if implemented in addition to the objectives of rationalisation of state taxation system.

While this tax is almost sailing smoothly, sharing of Motor Vehicles Tax and Profession Tax are still facing procedural problems. Urban local bodies in the state were getting a total fixed amount of Rs. 15

¹⁴G. Thimmaiah, "Municipal Resources Base for Financing of Capital Projects and Operation and Maintenance Expenditure", ISEC, Bangalore, 1975 (Mimeo).

¹⁵Government of Karnataka, Planning Department, *Background Papers Prepared for the Economic and Planning Council for Karnataka, Vol. III, Issues in Planning*, Bangalore, Mar 2, 1983, p. 58.

lakhs per year and the individual share of each urban local body ranges from Rs. 5 to Rs. 4.57 lakhs. It is also worth mentioning that the existing compensation is given to only 131 out of 230 municipalities and of which 7 are receiving less than Rs. 10 each, 19 are receiving between Rs. 10 and Rs. 100 and Rs. 24 are receiving between Rs. 100 and Rs. 1000¹⁶. In fact the MFEC, 1975 had earlier commented that "the existing compensation is no compensation at all" and suggested 20 per cent to 25 per cent of MVT (about Rs. 11 crores in 1975) to be transferred to municipalities on the basis of mileage (66 $\frac{2}{3}$ per cent and population 33 $\frac{1}{3}$ per cent).¹⁷ The present Committee, however, suggested to transfer only 2 per cent of MVT (Rs. 1.05 crores in 1982-83) on the basis of population (50%), road length (30%) and number of vehicles registered (20%). This is perhaps justifiable in view of the overall appreciation of financial limitations of state and local bodies and on the ground that "urban local bodies did not have any right to levy MVT and that what has been taken away is only the right to levy tolls on motor vehicles" (p. 46). Also, the recommended percentage share in MVT is better than the existing absolute flat share which remained unchanged for years in spite of the annual growth rate of 13 to 15 per cent in MVT receipts.

Profession Tax was taken over by the state government in 1976 to improve its performance and transfer the proceeds to urban local bodies. However, though the revenue performance under state administration has improved, its proceeds are not transferred to urban local bodies presumably for want of a distribution formula. In this connection, the Committee has recommended to transfer 75 per cent of the collection to the local bodies on the basis of population alone. The Committee had estimated the amount that could go to the local bodies as about Rs 7.87 crores (1982-83). It has not, however, mentioned whether the compensation should also be given to the local bodies which were not levying this tax, as compared to the earlier recommendation to provide some grants in the case of local bodies which were not levying octroi.

GRANTS-IN-AID

The local bodies in Karnataka are receiving grants for specific purposes as well as for compensating loss of revenue due to the abolition of octroi. 'Development grant' is given on *ad hoc* basis, pending finalisation of sharing formula for MVT. A lump sum amount of Rs. 2 crores annually is allotted in the state budget and, on

¹⁶Compiled from MFEC, 1975, Appendix Tables.

¹⁷*Ibid.*, p. 172.

an average, each municipality (excluding corporations) will receive about Rs. 75,000 (p. 25) subject to some adjustments. This is strictly earmarked for development works. The Committee felt that with the inadequate autonomous sources of revenue, the urban local bodies would require additional grants from the state government to meet the increasing expenditures, and hence has recommended to double the present amount to Rs. 4 crores. It also proposed to make conditional allotments (p. 47) to town and city municipalities whose Property Tax collection performance exceeds 50 per cent. This eligibility criteria may be considered as "an incentive for local bodies to collect the Property Tax promptly and efficiently" (p. 47). But this is politically not acceptable and an element of punishment for the fault of not necessarily of their own revenue mobilisation performance. If this criterion is adopted, then not more than 35 per cent of total municipalities could manage to get the grants¹⁸ depriving the remaining (majority of them are small municipalities). Hence, there should be some other criteria to be developed and implemented rather than an *ad hoc*, unilateral and conditional allotment.

The Committee, however, did not go into the details of the utilisation patterns of these development grants by the municipalities as this has a wider effect on the financial management of urban local bodies. It is observed that in spite of the stipulations that these grants should be spent on town development and should be spent at least within a year, 49 per cent of major, 67 per cent of medium and 72 per cent of small municipalities in the state did not spend these grants either fully or partially in the 'recent past for various reasons'.¹⁹ In fact there are many occasions where these grants are ultimately diverted to meet the establishment charges such as payment of salaries, etc.²⁰

Dearness allowance grants are also given to the urban local bodies to meet 50 per cent of the dearness allowances of the municipal employees. The Committee did not accept the arguments to change the base of DA level from 1970-71 to the current DA expenditure levels, but has recommended to enhance the present state budget provision of a little over Rs. 1 crore to Rs. 2 crores and that the neutralisation formula of 50:50 be revised to 70:30 at 1970-71 base. Though the reluctant recommendation of the Committee does not solve the problem even at the edge, the Committee rightly shifted the entire burden of reviewing the wages and salaries, staffing patterns, etc., to an expert committee.

¹⁸M. Nageswara Rao, *op. cit.*, p. 107.

¹⁹*Ibid.*, p. 109.

²⁰*Ibid.*, p. 109; also MFEC, 1975, p. 190.

LOANS

Though the Committee did not elaborate on the nature, structure and sanction of loans by the state government to urban local bodies, a few observations have been made on the loans advanced to urban local bodies either by state government or LIC for drinking water supply schemes. In view of the financial constraints of local bodies, the Committee observed that the state government should finance at least 50 per cent of the total capital cost of drinking water supply schemes as grants to the town municipalities (other than corporations and city municipalities). It also recommended that the overdue loan instalments from urban local bodies "over 10 years should be written off and the balance should be recovered in five or six instalments" (p.51). While the former recommendation stands on the genuine reason, the latter makes the local bodies to postpone the payment of instalments to get them waived after 10 years irrespective of their abilities to repay. In fact, the recent practice of deducting at least one or two instalments of overdue loans and/or interest charges while disbursing octroi grant appears to be reasonable and justifiable. The municipal authorities may, in future, be prompt in repayment of loan and interest.

FINANCIAL IMPLICATIONS

In view of all the financial recommendations, it arrived at an 'additional' financial transfer from states to the local bodies to the tune of about Rs. 14 50 crores annually (of which, through sharing of taxes: Rs. 8.92 crores and additional grants of Rs. 5.50 crores). This is in addition to the 'present' transfers totalling to 41.55 crores (shared taxes and grants: 14.55 crores and octroi compensation grant: Rs. 27 crores). Hence, the additional transfers recommended by the Committee appears to be very meagre as compared to the estimates of minimum requirements of the local bodies. The Committee is, however, aware of the meagreness of this sum, and expressed its inability to "recommend larger transfers because of the equally urgent need of the state government for resources for development" (p. 58). Given these financial constraints, one can only expect less than 8 per cent of the state annual budget as a maximum level of financial transfer to local bodies that the state can afford. In this situation, the only way left out to improve the local bodies is strengthen their own sources. A careful scrutiny of the tax and non-tax sources of individual municipalities has revealed that, "if these are administered properly and spent judiciously, most of the civic problems would

easily be reduced if not altogether eliminated".²¹ But what is urgently required is supervision, guidance and training to the municipal staff which could only be initiated and implemented by the state government.

Among other general recommendations, declaration of the civic status of towns and cities is worth noticing. The Committee has rightly observed that "certain areas have been declared as town municipalities, though they are very much rural in nature" (p. 53) and thus losing eligibility for assistance under IRDP. Hence, it has recommended only three way classification of all urban centres as Corporations, City Municipalities and Town Panchayats and the existing town municipalities (below 50,000 population) may be treated as Town Panchayats and their supervision may be transferred to the Rural Development and Cooperation Department. While suggesting this, the committee should have also considered a level of 'normal income' of the city municipality as an additional criteria as suggested by MFEC, 1975 (p. 203). In any case, the Committee's recommendation might, to certain extent, reduce the damaged reputation of urban local governments contributed by the smaller town municipalities.²²

In general, though a few observations and recommendations appear to be subject to some rethinking, most of the other recommendations can easily be implementable as they are made without affecting much the state budget. Perhaps for this percise reason, it is given to understand that the Government of Karnataka is in the process of taking policy decision on the basis of most of the recommendations of the Committee.²³ □

²¹M. Nageswara Rao, *op. cit.*, p. 110.

²²*Ibid.*, p. 110 and MFEC, 1975, p. 140.

²³Government of Karnataka, Background Papers, *op. cit.*, p. 97.

*Supreme Court Judgement on Dr. Balbir Singh and ORS., etc., etc., vs. MCD and ORS and Related Cases**

THIS GROUP of writ petitions and appeals raises interesting questions of law in regard to determination of rateable value of certain categories of properties situated in the Union Territory of Delhi. The questions are of great importance since they affect the liability of a large number of property owners in the Union Territory of Delhi to pay property tax under the Delhi Municipal Corporation Act, 1957 and the Punjab Municipal Act, 1911. The appeals before us arise out of writ petitions filed in the High Court of Delhi challenging assessments made by the Municipal Corporation while the writ petitions fall broadly into two categories—one category consisting of writ petitions which were originally filed in the High Court of Delhi but were subsequently transferred to this Court, while the other consisting of writ petitions which were filed directly in this Court. We are definitely of the view that the writ petitions filed directly in this Court are not maintainable under Article 32 of the Constitution since none of them complains of violation of any fundamental right and ordinarily would have rejected them straightway without going into the merits but the parties before us agreed that in view of the fact that these writ petitions involve identical questions as the appeals and the other writ petitions transferred to this Court and those questions would in any event have to be determined by us, we should not dismiss these writ petitions on the ground of non-maintainability but should proceed to dispose them of on merits on the assumption that they are maintainable.

We are concerned in these appeals and writ petitions with four different categories of properties namely: (i) where the properties are self-occupied, that is, occupied by the owners; (ii) where the properties are partly self-occupied and partly tenanted; (iii) where the land on which the property is constructed is lease hold land with

*This is a reliable but not an authenticated version of the judgement.
—(Jt. Editor).

a restriction that the lease hold interest shall not be transferable without the approval of the lessor; and (iv) where the property has been constructed in stages. The question is as to how the rateable value is to be determined in respect of these four categories of properties. So far as properties situated in the Union Territory of Delhi except New Delhi are concerned, the determination of rateable value for the purpose of assessability to property tax is governed by the Delhi Municipal Corporation Act, 1957 while the determination of rateable value for the purpose of assessability to property tax in respect of properties situated in New Delhi is governed by the Punjab Municipal Act, 1911. The relevant provisions of both these statutes in respect of determination of rateable value for the purpose of assessability to property tax are almost identical as observed by this Court in *Diwan Daulat Rai vs. New Delhi Municipal Committee* 1982 (2) SCR 607 and it would therefore be sufficient if we refer to the provisions of the Delhi Municipal Corporation Act 1957—Whatever we say in regard to determination of rateable value under the provisions of the Delhi Municipal Corporation Act 1957 would apply equally in relation to determination of rateable value under the provisions of the Punjab Municipal Act, 1911.

The definitions of the expressions used in the Delhi Municipal Corporation Act 1957 are to be found in Section 2 of that Act. Sub-Section (3) of Section 2 defines building to mean “a house, out-house, stable, latrine, urinal, shed, hut, wall (other than a boundary wall) or any other structure, whether of masonry bricks, wood, mud, metal or other material but does not include and portable shelter”. ‘Rateable Value’ is defined in Section 2 Sub-Section (47) to mean “the value of any land or building fixed in accordance with the provisions of this Act and the bye-laws made thereunder for the purpose of assessment to property taxes”. Chapter VIII of the Act deals with the subject of taxation and it comprises Sections 113 to 184. Clause (a) of Sub-Section (1) of Section 113 provides that the Corporation shall, for the purposes of the Act, levy property taxes. The subject of property taxes is then dealt with in Sections 114 to 135. Section 114 Sub-Section (1) lays down that property taxes shall be levied on lands and buildings in Delhi and shall consist *inter alia* of a general tax of not less than 10 and not more than 30 per cent of the rateable value of lands and buildings within the urban areas. There is a proviso to Sub-Section (1) of Section 114 which says that the Corporation may, when fixing the rate at which the general tax shall be levied during any year, determine that the rate leviable in respect of lands and buildings or portions of lands and buildings in which a particular class of trade or business is carried on, shall be higher than the rate determined in respect of other lands and

buildings or portions of other lands and buildings by an amount not exceeding one half of the rate so fixed. Then follows an explanation which provides that where any portion of a land or building is liable to a higher rate of general tax, such portion shall be deemed to be a separate property for the purpose of Municipal taxation. Section 115 Sub-Section (4) lays down that save as otherwise provided in the Act, the general tax shall be levied in respect of all lands and buildings in Delhi, except lands and buildings or portions of lands and buildings exclusively occupied and used for public worship by a society or body for a charitable purpose and two other categories of lands and buildings. Sub-Section (6) of Section 115 provides that where any portion of any land or building is exempt from the general tax by reason of its being exclusively occupied and used for public worship or for a charitable purpose, such portion shall be deemed to be a separate property for the purpose of municipal taxation. It would appear from these provisions that the general tax is leviable on land and building as a whole and separate portions of lands and buildings are not assessable to general tax as distinct and independent units save and except where any portion of the land or building is liable to a higher rate of general tax under the Proviso to Clause (d) of Sub-Section (1) of Section 114 or is exempt from the general tax by reason of its being exclusively occupied or used for public worship or for a charitable purpose under Sub-Section (4) of Section 115 in which case such portion of the land or building is deemed to be a separate property for the purpose of municipal taxation. We may point out that apart from the general tax, three other categories of taxes, namely, water tax, scavenger tax and fire tax are also included in the property taxes and they too are leviable as a percentage of the rateable value of lands and buildings. Now how is the rateable value to be determined. The answer is provided by Section 116, Sub-Section (1) of Section 116 lays down that the rateable value of any land or building assessable to property taxes shall be the annual rent at which such land or building may reasonably be expected to be let from year to year, less a sum equal to 10 per cent of such annual rent. Section 116 Sub-Section (2) provides that the rateable value of any land which is not built upon but is capable of being built upon and any land on which a building is in process of erection shall be fixed at five per cent of the estimated capital value of such land. Section 120 provides for the incidence of property taxes. Sub-section 1 of that section says that the property taxes shall be primarily leviable, if the land or building is let, upon the lessor, if the land or building is sublet, upon the superior lessor and if the land or building is unlet, upon the person in which the right to let the same vests. Sub-Section 2 of Section 120 deals with an exceptional case where any

land has been let for a term exceeding one year to a tenant and such tenant has built upon the land and in such case, the Sub-Section provides that the property taxes shall be primarily leviable upon the tenant. Sub-Section 3 of Section 120 is an important provision and we may, therefore, reproduce it *in extenso*:

The liability of the several owners of any building which is, or purports to be, severally owned in parts or flats or rooms, for payment of property taxes or any instalment thereof payable during the period of such ownership shall be joint and several.

This provision contemplates a case where there are several owners of a building which is or which purports to be severally owned in parts of flats or rooms, so that each part or flat or room in the building is owned by a separate owner and the question arises as to how the property taxes are to be assessed and who is to be held liable to pay the same. The basic assumption underlying this provision is that the building as a whole is to be assessed to the property taxes and not each separate part or flat or room belonging to a separate owner and the liability of the several owners for payment of the amount of property taxes assessed on the building is to be joint and several so that each of them would be liable to pay the whole amount of the property taxes assessed on the building *vis-a-vis* the Corporation. The amount of property taxes assessed on the building would, of course, be liable to be divided amongst the several owners in the proportion of the area comprised in the part or flat or room belonging to each owner, but so far as the Corporation is concerned the liability of the several owners will be joint and several. Then there are certain other provisions relating to the machinery for assessment but with them we are not immediately concerned in these appeals and writ petitions.

It will thus be seen that under the provisions of the Delhi Municipal Corporation Act 1957, the criteria for determining rateable value of a building is the annual rent at which such building might reasonably be expected to be let from year to year less certain deductions which are not material for our purpose. The word 'reasonably' in this definition is very important. What the owner might reasonably expect to get from a hypothetical tenant, if the building were let from year to year, affords the statutory yardstick for determining the rateable value. Now, what is reasonable is a question of fact and it depends on the facts and circumstances of a given situation. Ordinarily, "a bargain between a willing lessor and a willing lessee uninfluenced by any extraneous circumstances may afford a guiding test of reasonableness" and in normal circumstances, the actual rent payable by a

tenant to the landlord would afford reliable evidence of what the landlord may reasonably expect to get from the hypothetical tenant, unless the rent is inflated or depressed by reason of extraneous considerations such as relationship, expectation of some other benefit, etc. There would ordinarily be a close approximation between the actual rent received by the landlord and the rent which he might reasonably expect to receive from a hypothetical tenant. But in case of a building subject to rent control legislation, this approximation may and often does get displaced, because under rent control legislation the landlord cannot claim to recover from the tenant anything more than the standard rent and his reasonable expectation must, therefore, be limited by the measure of the standard rent lawfully recoverable by him. There are several decisions where the impact of rent control legislation on the determination of rateable value has been considered by this Court and the latest amongst such decisions is that in *Dewan Daulat Rai vs. New Delhi Municipal Committee* 1980 (2) SCR-607. This decision has reviewed all the earlier decisions given by this Court and as of date has spoken the last word on the subject so far as this court is concerned and hence it would be instructive and helpful to refer to it in some detail.

There were three appeals decided by a common judgement in *Dewan Daulat Rai's (Supra)* and the question which arose for determination in these appeals was as to how the rateable value of a building should be determined for levy of property tax where the building is governed by the provisions of the Delhi Rent Control Act, 1958 (hereinafter referred to as the Rent Act) but the standard rent has not yet been fixed. One of these appeals related to a case where the building was situate within the jurisdiction of the New Delhi Municipal Committee and was liable to be assessed to property tax under the Punjab Municipal Act, 1911, as is the case in many of the appeals and writ petitions before us, while the other two related to cases where the buildings were situate within the limits of the Corporation of Delhi and were assessable to property tax under the Delhi Municipal Corporation Act, 1957. The property tax under both statutes was levied with reference to the rateable value of the building and, as already pointed out by us earlier, the rateable value was defined in both statutes in the same terms, barring a second proviso which occurred in Section 116 of the Delhi Municipal Corporation Act, 1957 but was absent in Section 3(1)(b) of the Punjab Municipal Act, 1911 and which was admittedly of no consequences. The controversy between the parties centred round the question as to what is the true meaning of the expression. "The gross annual rent at which such land or building... might reasonably be expected to let from year to year" occurring in the definition in both statutes. The

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tenant to the landlord would afford reliable evidence of what the landlord may reasonably expect to get from the hypothetical tenant, unless the rent is inflated or depressed by reason of extraneous considerations such as relationship, expectation of some other benefit, etc. There would ordinarily be a close approximation between the actual rent received by the landlord and the rent which he might reasonably expect to receive from a hypothetical tenant. But in case of a building subject to rent control legislation, this approximation may and often does get displaced, because under rent control legislation the landlord cannot claim to recover from the tenant anything more than the standard rent and his reasonable expectation must, therefore, be limited by the measure of the standard rent lawfully recoverable by him. There are several decisions where the impact of rent control legislation on the determination of rateable value has been considered by this Court and the latest amongst such decisions is that in *Dewan Daulat Rai vs. New Delhi Municipal Committee* 1980 (2) SCR-607. This decision has reviewed all the earlier decisions given by this Court and as of date has spoken the last word on the subject so far as this court is concerned and hence it would be instructive and helpful to refer to it in some detail.

There were three appeals decided by a common judgement in *Dewan Daulat Rai's (Supra)* and the question which arose for determination in these appeals was as to how the rateable value of a building should be determined for levy of property tax where the building is governed by the provisions of the Delhi Rent Control Act, 1958 (hereinafter referred to as the Rent Act) but the standard rent has not yet been fixed. One of these appeals related to a case where the building was situate within the jurisdiction of the New Delhi Municipal Committee and was liable to be assessed to property tax under the Punjab Municipal Act, 1911, as is the case in many of the appeals and writ petitions before us, while the other two related to cases where the buildings were situate within the limits of the Corporation of Delhi and were assessable to property tax under the Delhi Municipal Corporation Act, 1957. The property tax under both statutes was levied with reference to the rateable value of the building and, as already pointed out by us earlier, the rateable value was defined in both statutes in the same terms, barring a second proviso which occurred in Section 116 of the Delhi Municipal Corporation Act, 1957 but was absent in Section 3(1)(b) of the Punjab Municipal Act, 1911 and which was admittedly of no consequences. The controversy between the parties centred round the question as to what is the true meaning of the expression. "The gross annual rent at which such land or building... might reasonably be expected to let from year to year" occurring in the definition in both statutes. The

argument put forward by the Municipal Authorities was that since the standard rent of the building was not fixed by the Controller under Section 9 of the Rent Act in any of the cases before the Court and in each of the cases the period of limitation prescribed by Section 12 of the Rent Act for making an application for fixation of the standard rent had expired, the landlord was entitled to continue to receive the actual rent from the tenant without any legal impediment, and hence the rateable value of the building was not limited to the standard rent determinable in accordance with the principles laid down in the Rent Act but was liable to be assessed by reference to the contractual rent recoverable by the landlord from the tenant. The Municipal authorities urged that if it was not penal for the landlord to receive the contractual rent from the tenant, even if it be higher than the standard rent determinable under the provisions of the Rent Act it would not be incorrect to say that the landlord could reasonably expect to let the building at the contractual rent and the contractual rent could, therefore, be regarded as providing a correct measure for determination of the rateable value of the building. This argument was, however, rejected by the Court and it was held that even if the standard rent of a building has not been fixed by the Contract under Section 9 of the Rent Act, the landlord cannot reasonably expect to receive from a hypothetical tenant anything more than the standard rent determinable under the provisions of the Rent Act and this would be so equally whether the building has been let out to a tenant who has lost his right to apply for fixation of the rent by reason of expiration of the period of limitation prescribed by Section 12 of the Rent Act or the building is self occupied by the owner. Therefore, the Court held that in either case, according to the definition of 'rateable value' given in both statutes, the standard rent determinable under the provisions of the Rent Act and not the actual rent received by the landlord from the tenant, would constitute the correct measure of the rateable value of the building. The court pointed out that in each case the assessing authority would have to arrive at its own figure of the standard rent by applying the principles laid down in the Rent Act for determination of the standard Rent and determine the rateable value of the building on the basis of the actual rent received by the landlord and observed that the rateable value of the building must be held to be limited by the measure of the standard rent determinable on the principles laid down in the Rent Act, and it would not exceed such measure of the standard rent. This decision is, therefore, clear authority for the proposition that the rateable value of a building, whether tenanted or self occupied, is limited by the measure of standard rent arrived at by the assessing authority by applying the principles laid down in the Rent Act and cannot exceed the figure of

the standard rent so arrived at by the assessing authority. Now, in the course of the arguments advanced before us, we found that there was some confusion in regard to the true import of this decision. The municipal authorities contended that the rationale of this decision was that whatever be the figure of the standard rent whether determined by the Controller under Section 9 of the Rent Act or arrived at by the assessing authority by applying the principles laid down in the Rent Act, must be taken as the measure of rateable value of the building for the purpose of assessability to property tax, irrespective of any other considerations. Even if the owner of the building is able to show by producing satisfactory evidence that having regard to prevailing circumstances such as the nature of the building, its situation or state of repair or economic depression or other similar causes, he cannot reasonably expect to get from a hypothetical tenant even the amount of standard rent determinable on the principles laid down in the Rent Act, the rateable value of the building must still be determined at the figure of the standard rent. So it was argued on behalf of the Municipal authorities, but we do not think that this is a correct interpretation of the decision in *Dewan Daulat Rai's case* (supra). The controversy in that case was not whether the figure of standard rent of a building should be taken as its rateable value even where the rent which the owner reasonably expects to get from a hypothetical tenant is less than the figure of the standard rent but whether the contractual rent receivable by the landlord from the tenant should be taken to be the rateable value even if it be higher than the standard rent determinable under the provisions of the Rent Act. The Court held that even if the landlord was entitled under the law to recover the contractual rent from the tenant because the standard rent of the building had not yet been fixed and the time for making an application by the tenant for fixation of the standard rent had already expired, such contractual rent could not furnish a measure for determination of the rateable value, because the question had to be judged not with reference to the actual tenant but with reference to a hypothetical tenant and the yardstick provided by the statute for determination of the rateable value was as to what rent the owner of the building might reasonably expect to get from a hypothetical tenant, if the building were let from year to year and the hypothetical tenant could not be assumed to be willing to pay anything more than the standard rent, because after taking the hypothetical tenancy, he could immediately make an application for fixation of standard rent. The Court, therefore, reached the conclusion that even if the landlord was lawfully entitled to receive the contractual rent from the tenant, such contractual rent could not be taken to be the rateable value of the building, because the reasonable

expectation of the landlord to receive rent from a hypothetical tenant could not possibly exceed the standard rent determinable in accordance with the provisions laid down in the Rent Act. The standard rent determinable on the principles set out in the Rent Act was laid down by the Court as *the upper limit* of the rent which the landlord may expect to receive from a hypothetical tenant, if the building were let out to him from year to year. The court never said that even if the actual rent receivable by the landlord from the tenant or the rent which the owner may reasonably expect to receive from a hypothetical tenant were lower than the standard rent determinable in accordance with the principles laid down in the Rent Act, the standard rent must still be taken to be the rateable value of the building. Such a view would fly in the face of the definition of 'rateable value' in both statutes and could not possibly have been taken by the Court in this case. It is significant to note what the Court said in this case, and here we are quoting from the judgement delivered by the Court, namely, that the rateable value of a building "must be held to be *limited by the measure of standard rent determinable on the principles laid down in the Delhi Rent Control Act 1958 and it cannot exceed such measure of standard rent*" (emphasis supplied). It is thus clear from this decision that the rateable value of a building cannot exceed the measure of the standard rent, whether determined by the Controller under Section 9 of the Rent Act or arrived at by the assessing authority by applying the principles laid down in the Rent Act, but it may in a given case be less than the standard rent having regard to various attendant circumstances and considerations. If, for example, the building is not in a proper state of repair or is so situate that it has certain disadvantages from the point of view of easy accessibility or means of transport or any other similar cause, the actual rent which the owner may reasonably accept to receive from a hypothetical tenant may be less than the standard rent determinable on the principles laid down in the Rent Act. It is also possible that in case of a building recently constructed, the standard rent determinable according to the principles laid down in the Rent Act may be very high having regard to the fantastic inflation in the value of land and the abnormal rise in the cost of construction in the last few years, but it may not be, and perhaps in many cases would not be, possible for the owner to obtain such high rent from a hypothetical tenant. It is equally possible that the building constructed by the owner be so large as a single unit that it may be difficult for the owner to find a tenant who will be prepared to pay the huge amount of rent which the standard rent is bound to be if determined on the principles laid down in the Rent Act and having regard to the extreme smallness of the number of possible

tenants of such a building, the rent which the owner may reasonably expect to receive from a hypothetical tenant may be very much less than the standard rent. The test therefore is not what is the standard rent of the building but what is the rent which the owner reasonably expects to receive from a hypothetical tenant and such reasonable expectation *can in no event exceed* the standard rent of the building determinable in accordance with the principles laid down in the Rent Act, though it may in a given case be lower than such standard rent.

We may now turn to the relevant provision of the Rent Act which has been since 9th February 1959 the law in force relating to control of rent of buildings situate within the jurisdiction of the Delhi Municipal Corporation and the New Delhi Municipal Committee. Section 2(k) defines 'standard rent' in relation to any premises to mean "the standard rent referred to in Section 6 or where the standard rent has been increased under Section 7, such increased rent". Section 6 lays down different formulae for determination of standard rent in different classes of cases and each formula gives a precise and clear-cut method of computation yielding a definite figure of standard rent in respect of building following within its coverage. We are concerned in these appeals and writ petitions with determination of rateable value of residential premises and we will, therefore, refer only to so much of Section 6 as relates to residential premises. Section 6 Sub-Section 1(A)(1) lays down the formula for determination of standard rent in case of residential premises where such premises have been let out at any time before 2nd June, 1944, but this provision is not material for our purpose, since the residential buildings with which we are concerned in these appeals and writ petitions are all buildings constructed after 2nd June, 1944. Sub-Section 1(A) (2)(a) of Section 6 has also no relevance for our purpose since it deals with the case of residential premises which have been let out at any time on or after 2nd June, 1944 and in respect of which rent has been fixed under the Delhi and Ajmer-Merwara Rent Control Act, 1947 or the Delhi and Ajmer Rent Control Act, 1952, which is not the case in respect of any of the residential buildings forming the subject matter of the present writ petitions and appeals. Section 6 Sub-Section 1(A) (2)(a) is however material and we may, therefore set it out *in extenso*:

Section 6 (1) Subject to provisions of sub-section (2) 'standard rent' in relation to any premises means:

(a) in case of residential premises—

(2) where such premises have been let out at any time before

the 2nd day of June, 1944—

- (b) in any other case, the rent calculated on the basis of seven and one-half per cent, per annum of the aggregate amount of the reasonable cost of construction and the market price of the land comprised in the premises on the date of the commencement of the construction:

Provided that where the rent so calculated exceeds twelve hundred rupees per annum, this clause shall have effect as if for the words "seven and one-half per cent", the words "eight and one-fourth per cent" had been substituted;

Though we are not concerned with non-residential premises we may point out that in respect of non-residential premises which have been let out at any time on or after 2nd June, 1944 and in respect of which rent has not been fixed under the Delhi and Ajmer-Merwara Rent Control Act, 1947 or the Delhi and Ajmer Rent Control Act, 1952, standard rent is required to be calculated on the same basis as set out in sub-section 1(A) (2)(b) of Section 6 with only this difference that instead of the rent being calculated at the rate of $8\frac{1}{2}$ per cent as laid down in that provision, it is required to be calculated at the rate of $8\frac{3}{4}$ per cent. Sub-section (2) of Section 6 has also considerable bearing on the controversy between the parties and it may, therefore, be set out in full:

(2) Notwithstanding anything contained in sub-section (1)—

- (a) in the case of any premises, whether residential or not, constructed on or after the 2nd day of June, 1951, but before the 9th day of June, 1955, the annual rent calculated with reference to the rent at which the premises were let for the month of March, 1958, or if they were not so let, with reference to the rent at which they were last let out, shall be deemed to be the standard rent for a period of seven years from the date of the completion of the construction of such premises; and
- (b) in the case of any premises, whether residential or not, constructed on or after the 9th day of June, 1955, including premises constructed after the commencement of this Act, the annual rent calculated with reference to the rent agreed upon between the landlord and the tenant when such premises were first let out shall be deemed to be the standard rent for a period of five years from the date of such letting out.

Then follows Section 7 of which only sub-section (1) is material and it runs as follows:

- 7(1) Where a landlord has at any time, before the commencement of this Act with or without the approval of the tenant or after the commencement of this Act with the written approval of the tenant or of the Controller, incurred expenditure for any improvement, addition or structural alteration in the premises, not being expenditure on decoration or tenantable repairs necessary or usual for such premises, and the cost of that improvement, addition or alteration has not been taken into account in determining the rent of the premises, the landlord may lawfully increase the standard rent per year by an amount not exceeding seven and one-half per cent, of such cost.

The next section which is material for our purpose is Section 9 and since considerable argument has turned upon the provisions of that Section and particularly Sub-Section (4) it would be useful to set out the relevant provisions of that section which read as follows:

- 9(1) The Controller shall, on an application made to him in this behalf, either by the landlord or by the tenant, in the prescribed manner, fix in respect of any premises :
 - (i) the standard rent referred to in section 6; or
 - (ii) the increase, if any, referred to in section 7.
- (2) In fixing the standard rent of any premises or the lawful increase thereof, the Controller shall fix an amount which appears to him to be reasonable having regard to the provisions of section 6 or section 7 and the circumstances of the case.
- (3) Where for any reason it is not possible to determine the standard rent of any premises on the principles set forth under Section 6, the Controller may fix such rent as would be reasonable having regard to the situation, locality and condition of the premises and the amenities provided therein and where there are similar or nearly similar premises in the locality, having regard also to the standard rent payable in respect of such premises.

These are the only material provisions of the Rent Act which are relevant for the determination of the controversy which arises in the

present appeals and writ petitions.

It is clear from the definition of 'standard rent' contained in Section 2(k) that the standard rent of a building means the standard rent referred to in Section 6 or where the standard rent has been increased under Section 7, such increased rent. This definition is not an inclusive but an exhaustive definition and it defines the standard rent to mean either the standard rent referred to in Section 6 or the increased standard rent under Section 7. It is significant to note that it does not contain any reference to Section 9, Sub-section (4). Whenever, therefore, any reference is made to standard rent in any provision of the Rent Act, it must mean standard rent as laid down in Section 6 or increased standard rent as provided in Section 7 and nothing more. Section 6 lays down the principles for determination of standard rent in almost all conceivable classes of cases and Section 7 provides for increase in the standard rent where the landlord has incurred expenditure for any improvement, addition or structural alteration in the premises. Section 9, as the definition in Section 2(k) clearly suggests and the marginal note definitely indicates, does not define what is standard rent but merely lays down the procedure for fixation of standard rent. Sub-Section (1) of Section 9 provides that the Controller shall, on an application made to him in that behalf, either by the landlord or by the tenant, in the prescribed manner, fix in respect of any premises, standard rent referred to in Section 6 or the increase, if any, referred to in Section 7. Sub-section (2) then proceeds to say that in fixing the standard rent of any premises or the lawful increase thereof, the Controller shall fix an amount which appears to him to be reasonable having regard to the provisions of Section 6 or Section 7 and the circumstances of the case. The Controller is thus entrusted by Sub-Sections (1) and (2) of Section 9 with the task of fixing the standard rent of any premises having regard to the principles set out in Section 6 or the provision of Section 7 and any other relevant circumstances of the case. The words "having regard to . . . the circumstances of the case" undoubtedly leave a certain measure of discretion to the Controller in fixing the standard rent. But this discretion is not such an unfettered and unguided discretion as to enable the Controller to fix any standard rent which he considers reasonable. He is required to fix the standard rent in accordance with the formula laid down in Section 6 or Section 7 and he cannot ignore that formula by saying that in the circumstances of the case he considers it reasonable to do so. The only discretion given to him is to make adjustments in the result arrived at on the application of the relevant formula, where it is necessary to do so by reason of the fact the landlord might have made some alteration or improvement

in the building or circumstances might have transpired affecting the condition or utility of the building or some such circumstances of similar character. The compulsive force of the formula laid down in Section 6 for the determination of standard rent and of the provisions of Section 7 for increase in standard rent is not in any way whittled down by sub section (2) of Section 9 but a marginal discretion is given to the Controller to mitigate the rigour of the formulae where the circumstances of the case so require.

The question, however, may arise as to what is to happen if it is not possible to determine the standard rent of any premises on the principles set forth in Section 6. The machinery set out in Sub-Sections (1) and (2) of Section 9 would then fail of application, because it would not be possible for the Controller to fix the standard rent having regard to the provisions of Section 6. This contingency is taken care of by sub-section (4) of Section 9 which provides that in such a situation the Controller may fix such rent as would be reasonable having regard to the situation, locality and condition of the premises and the amenities provided therein and where there are similar or nearly similar premises in the locality, having regard also to the standard rent payable in respect of such premises. But the basic condition for the applicability of Sub-Section (4) of Section 9 is that it should not be possible to determine the standard rent on the principles set out in Section 6. Where such is the case, the Controller is empowered to fix such rent as would be reasonable having regard to the situation, locality and condition of the premises and the amenities provided therein. But even while fixing such rent, the Controller does not enjoy unfettered discretion to do what he likes and he is bound to take into account the standard rent payable in respect of similar or nearly similar premises in the locality. The standard rent determinable on the principles set out in Section 6, therefore, again becomes a governing consideration. The legislature obviously did not intend to vest unguided discretion in the Controller to fix such rent as he considers reasonable without any principles or norms to guide him and, therefore, it provided that in fixing reasonable rent, the Controller shall take into account the standard rent payable in respect of similar or nearly similar premises. The Controller must derive guidance from the standard rent of similar or nearly similar premises in the locality and apart from discharging the function of affording guidance to the Controller in fixing the reasonable rent, this requirement also seeks to ensure that there is no wide disparity between the reasonable rent of the premises fixed by the Controller and the standard rent of similar or nearly similar premises situate in the locality. The process of reasoning which the Controller would have to follow in fixing reasonable rent would, therefore, be first to

ascertain what is the standard rent payable in case of similar or nearly similar premises in the locality, and then to consider how far such standard in its application to the premises, needs adjustment having regard to the situation, locality and condition of the premises and the amenities provided therein. The reasonable rent so determined would be the standard rent of the premises fixed by the Controller. There may, however, be cases where there are no similar or nearly similar premises in the locality and in such cases guideline to the Controller would not be available and the Controller would have to determine as best as he can what rent would be reasonable having regard to the situation, locality and condition of the premises and the amenities provided therein. But such cases would by their very nature be extremely rare and even, there, the Controller would not be on an uncharted sea; he would have to fix the reasonable rent of the premises taking into account the standard rent of similar or nearly similar premises in the adjoining locality and making necessary adjustments in such standard rent.

Now, let us take up for consideration the first category of premises, in regard to which the question of determination of rateable value arises, namely, where the premises are self-occupied, that is, occupied by the owner. We will first consider the case of residential premises. It is clear from the above discussion that the rateable value of the premises would be the annual rent at which the premises might reasonably be expected to be let to a hypothetical tenant and such reasonable expectation cannot in any event exceed the standard rent of the premises, though in a given situation it may be less than the standard rent. The standard rent of the premises would constitute the upper limit of the annual rent which the owner might reasonably expect to get from a hypothetical tenant, if he were to let out the premises. Even where the premises are self-occupied and have not been let out to any tenant, it would still be possible to determine the standard rent of the premises on the basis of hypothetical tenancy. The question in such case would be as to what would be the standard rent of the premises if they were let out to a tenant. Obviously in such an eventuality, the standard rent would be determinable on the principles set out in sub-section (1)(A)(2)(b) of Section 6 of the Rent Act. The standard rent would be the rent calculated on the basis of $7\frac{1}{2}$ per cent or $8\frac{1}{2}$ per cent per annum of the aggregate amount of the reasonable cost of construction and the market price of the land comprised in the premises on the date of commencement of the construction. The Delhi Municipal Corporation, however, contended that where any premises constructed on or after 9th June, 1955 and the premises in most of the cases before us are premises constructed subsequent to 9th June 1955 have not been let out at any time and

have throughout been self-occupied, the standard rent of such premises would be determinable under the provisions of Sub-Section (2) (b) of Section 6 and any rent which would be agreed upon between the landlord and the tenant if the premises were let out to a hypothetical tenant would be deemed to be the standard rent of the premises and the formula set out in sub-section (1)(B) (2)(b) of Section 6 would not be applicable for determining the standard rent by reason of the non-obstant clause contained in the opening part of sub-section (2) of Section 6. This contention, plausible though it may seem, is in our opinion not well-founded. It is difficult to see how the provision enacted in sub-section (2)(b) of Section 6 can be applied for determining the standard rent of the premises when the premises have not been actually let out at any time. Sub-section (2)(b) of Section 6 clearly contemplates a case where there is actual letting out of the premises as distinct from hypothetical letting out, because under this provision the annual rent agreed upon between the landlord and the tenant at the time of first letting out is deemed to be the standard rent for a period of five years from the date of such letting out and it is impossible to imagine how the concept of *first* letting out can fit in with anything except actual letting out and how the period of five years can be computed from the date of any hypothetical letting out. It is only from the date of *first actual* letting out that the period of five years can begin to run and for this period of five years, the annual rent agreed upon between the landlord and the tenant at the time of *first actual* letting out would be deemed to be the standard rent. Sub-Section (2)(b) of Section 6 can have no application where there is no *actual* letting out and hence in case of premises which are constructed on or after 9th June, 1955 and which have never been let out at any time, the standard rent would be determinable on the principles laid down in sub-section (1)(A)(2)(b) of Section 6. So also in case of premises which have been constructed before 9th June, 1955 but after 2nd June, 1951 the standard rent would, for like reasons, be determinable under the provisions of sub-section (1)(A)(2)(b) of Section 6 if they have not been *actually* let out at any time since their construction. But if these two categories of premises have been *actually* let out at some point of time in the past, then in the case of former category, the annual rent agreed upon between the landlord and the tenant when the premises were *first actually* let out shall be deemed to be the standard rent for a period of five years from the date of such letting out and in the case of the latter category, the annual rent calculated with reference to the rent at which the premises were *actually* let for the month of March 1958 or if they were not so let, with reference to the rent at which they were last *actually* let out shall be deemed to be the standard rent for a period of seven years

from the date of completion of the construction of the premises. However, even in the case of these two categories of premises the standard rent after the expiration of the period of five years or seven years as the case may be, would be determinable on the principles set out in Sub-Section (1)(A)(2)(b) of Section 6. Thus in the case of self-occupied residential premises, the standard rent determinable under the provisions of Sub-section (2)(a) or (2)(b) of Section 6 in cases falling within the scope of ambit of those provisions and in other cases, the standard rent determinable under the provisions of sub-section (1)(A)(2)(b) of Section 6 would constitute the upper limit of the rateable value of the premises. Similarly, on an analogous process of reasoning, the standard rent determinable under the provision of Sub-Section (2)(a) or (2)(b) of Section 6 in cases falling within the scope and ambit of those provisions and in other cases, the standard rent determinable under the provisions of Sub-Section (1)(B) (2)(b) of Section 6 would constitute the upper limit of the rateable value so far as self-occupied non-residential premises are concerned. The rateable value of the premises, whether residential or non-residential, cannot exceed the standard rent, but, as already pointed out above, it may in a given case be less than the standard rent. The annual rent which the owner of the premises may reasonably expect to get if the premises are let out would depend on the size, situation, locality and condition of the premises and the amenities provided therein and all these and other relevant factors would have to be evaluated in determining the rateable value, keeping in mind the upper limit fixed by the standard rent. If this basic principle is borne in mind, it would avoid wide disparity between the rateable value of similar premises situate in the same locality, where some premises are old premises constructed many years ago when the land prices were not high and the cost of construction had not escalated and others are recently constructed premises when the prices of land have gone up almost 40 to 50 times and the cost of construction has gone up almost 3 to 5 times in the last 20 years. The standard rent of the former category of premises on the principle set out in Sub-Section (1)(A)(2)(b) or (1)(B)(2)(b) of Section 6 would be comparatively low, while in case of latter category of premises the standard rent determinable on these principles would be unduly high. If the standard rent were to be the measure of rateable value, there would be huge disparity between the rateable value of old premises and recently constructed premises, though they may be similar and situate in the same or adjoining locality. That would be wholly illogical and irrational. Therefore, what is required to be considered for determining rateable value in case of recently constructed premises is as to what is the rent which the owner might reasonably expect to get if the premises are let out and that is bound

to be influenced by the rent which is obtainable for similar premises constructed earlier and situate in the same or adjoining locality and which would necessarily be limited by the standard rent of such premises. The position in regard to the determination of rateable value of self-occupied residential and non-residential premises may thus be stated as follows: The standard rent determinable on the principles set out in Sub-Section (2)(a) or (2)(b) or (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6, as may be applicable, would fix the upper limit of the rateable value of the premises and within such upper limit, the assessing authorities would have to determine as to what is the rent which the owner may reasonably expect to get if the premises are let to a hypothetical tenant and for the purpose of such determination, the assessing authorities would have to evaluate factors such as size, situation, locality and condition of the premises and the amenities therein provided. The assessing authorities would also have to take into account the rent which the owner of similar premises constructed earlier and situate in the same or adjoining locality, might reasonably expect to receive from a hypothetical tenant and which would necessarily be within the upper limit of the standard rent of such premises, so that there is no wide disparity between the rate of rent per square foot or square yard which the owner might reasonably expect to get in case of the two premises. Some disparity is bound to be there on account of the size, situation, locality and condition of the premises and the amenities provided therein. Bigger size beyond a certain optimum would depress the rate of rent and so also would less favourable situation or locality or lower quality of construction or unsatisfactory condition of the premises or absence of necessary amenities and similar other factors. But after taking into account these varying factors, the disparity should not be disproportionately large. We may also point out that until 1980 the assessing authorities were giving a self-occupancy rebate of 20 per cent in the property tax assessed on self-occupied residential premises. We would suggest that, in all fairness, this rebate of 20 per cent may be resumed by the assessing authorities, because there is a vital distinction, from the point of view of the owner, between self-occupied premises and tenanted premises and the right to shelter under a roof being a basic necessity of every human being, residential premises which are self-occupied must be treated on a more favourable basis than tenanted premises, so far as the assessability to property tax is concerned.

We may now turn to consider the second category of premises in regard to which the rateable value is required to be determined. This category comprises premises which are partly self-occupied and partly tenanted. Now, as we have pointed out above, it is the premises as a

whole which are liable to be assessed to property tax and not different parts of the premises as distinct and separate units. But while assessing the rateable value of the premises on the basis of the rent which the owner may reasonably expect to get if the premises are let out, it cannot be overlooked that where the premises consist of different parts which are intended to be occupied as distinct and separate units, the hypothetical tenancy which would have to be considered would be the hypothetical tenancy of each part as a distinct and separate unit of occupation and the sum total of the rent reasonably expected from a hypothetical tenant in respect of each distinct and separate unit would represent the rateable value of the premises. Now obviously the rent which the owner of the premises may reasonably expect to receive in respect of each distinct and separate unit cannot obviously exceed the standard rent of such unit and the assessing authorities would therefore have to determine the standard rent with a view to fixing the upper limit of the rent which can reasonably be expected by the owner on letting out such unit to a hypothetical tenant. How is this to be done?

Where the case falls within Sub-Section (2)(a) or (2)(b) of Section 5, no problem arises, because whether the distinct and separate unit of which the standard rent is to be determined is self-occupied or tenanted makes no difference, for in either case, the standard rent would be governed by one or the other of these two provisions. So also in cases falling outside sub-section (2)(a) and (2)(b) of Section 6, it would make no difference whether the distinct and separate unit of which the standard rent is to be determined is self-occupied or tenanted; or in either case, the standard rent would be determinable under the provisions of sub-section (1)(a) (2)(b) or (1)(a) (2)(b) of Section 6. But the question is, how is the formula set out in Sub-Section (1)(a) (2)(b) or (1)(b) (2)(b) of Section 6 to be applied? Obviously there would be no difficulty in applying the formula, if the premises of which the standard rent is to be determined consists of the entire building. Then the reasonable cost of construction of the building can be taken and it can be aggregated with the market price of the land comprised in the building on the date of commencement of construction of the building and $7\frac{1}{2}$ per cent of such aggregate amount would represent the standard rent of the building. But where the building consists of more than one distinct and separate units and the standard rent to be determined is that of any particular unit, the formula may present some difficulty of application if it is sought to be applied literally in relation to that particular unit alone and by itself, because even if the reasonable cost of construction of that particular unit can be ascertained, it would not be possible to determine "the market price of the land

comprised in the premises on the date of the commencement of construction" since the entire building and not merely that particular unit would be standing on the land and the land on which the building is standing would be land comprised in the building and it would be irrational and absurd to speak of it as land comprised in that particular unit. The formula can, however, be applied for determining the standard rent of a particular unit by computing the standard rent of the building in accordance with the formula and then apportioning the standard rent so computed amongst the different units of occupation comprised in the building on the basis of floor area, taking into consideration differences, if any, on account of the situation and condition of the various units and the amenities provided in such units. This would be the most rational way in which the market price of the land comprised in the building on the date of commencement of construction can be spread over amongst the different units of occupation comprised in the building. It would therefore seem that when the rateable value of a building consisting of distinct and separate units of occupation is to be assessed, the standard rent of each unit would have to be determined on the principles set out above and within the upper limit fixed by the standard rent, the assessing authorities would have to determine the rent which the owner may reasonably expect to get if such unit were let out to a hypothetical tenant and in arriving at this determination, the assessing authorities would have to take into account the same factors which we have already discussed in the preceding paragraphs of this judgement while dealing with the question of assessment of self-occupied properties. The sum total of the rent which the owner may reasonably expect to get from a hypothetical tenant in respect of each distinct and separate unit of occupation calculated in the manner aforesaid, would represent the rateable value of the building. We may point out that this formula for determination of rateable value would apply, irrespective of whether any of the distinct and separate units of occupation comprised in the building are self-occupied or tenanted. The only difference in case of a distinct and separate unit of occupation which is tenanted would be that, subject to the upper limit of the standard rent, the actual rent received by the owner would furnish a fairly reliable measure of the rent which the owner may reasonably expect to receive from a hypothetical tenant, unless it can be shown that the actual rent so received is influenced by extra-commercial considerations.

That takes us to the third category of premises where the land on which the premises are constructed is leasehold land with a restriction that the leasehold interest shall not be transferable without the approval of the lessor. There are two classes of cases which fall

within this category. The first is where premises have been constructed by the owner on land taken on lease directly from the government and the second is where premises have been constructed by the owners on land taken on sub-lease from a Cooperative House Building Society which has in its turn taken a lease from the government. The lease in the first class of cases is a lease in perpetuity and so also are the lease and a sub-lease in the second class of cases. We are concerned in these writ petitions and appeals with the second class of cases and we shall, therefore, confine our observations to that class. The sub-lease in this class of cases is executed by Cooperative House Building Society in favour of each of its members in respect of the plot of land sub-leased to him. One of the clauses in the sub-lease, the standard form of which is to be found in clause 6 of the document of sub-lease in transferred case no. 75/82, *inter alia* provides as under:

(6) (a) The sub-lease shall not sell, transfer, assign or otherwise part with the possession of the whole or any part of the residential plot in any form or manner, benami or otherwise, to a person who is not a member of the Lessee.

(b) The sub-lease shall not sell, transfer, assign or otherwise part with the possession of the whole or any part of the residential plot to any other member of the Lessee except with the previous consent in writing of the Lessor which he shall be entitled to refuse in his absolute discretion.

Provided that in the event of the consent being given, the Lessor may impose such terms and conditions as he thinks fit and the Lessor shall be entitled to claim and recover a portion of the unearned increase in the value (*i.e.*, the difference between the premium paid and the market value) of the residential plot at the time of sale, transfer, assignment, or parting with the possession, the amount to be recovered being fifty per cent of the unearned increase and the decision of the Lessor in respect of the market value shall be final and binding.

Provided further that the Lessor shall have the pre-emptive right to purchase the property after deducting fifty per cent of the unearned increase as aforesaid.

It is obvious that by reason of this clause in the sub-lease, the owner who has constructed premises on the plot of land sub-leased to him, cannot sell, transfer or assign his lease-hold interest in the plot of land to any one except a member of the Cooperative House Building Society and even so far as sale, transfer or assignment to a

member of the Cooperative House Building Society is concerned, it cannot be made except with the previous consent in writing of the government which the government may give or refuse in its absolute discretion, and in case the government chooses to give its consent, the government would be entitled to claim 50 per cent of the unearned increase in the value of the land at the time of such sale, transfer or assignment and moreover, if the government so desires, it would have a pre-emptive right to purchase the plot of land after deducting 50 per cent of the unearned increase in the value of the plot of land. This covenant in the sub-lease is clearly a covenant running with the land and even where sale, transfer or assignment of the plot of land has taken place with the previous consent in writing of the government, this covenant would continue to bind the purchaser, transferee or assignee, vide *Commissioner of Wealth Tax vs. P.N. Sikand* (1977) 2 SCC 798.

Relying on this clause in the sub-lease, the Delhi Municipal Corporation contended that since the plot of land on which the premises stands cannot be transferred without the previous consent of the government, it has no market value and its market price cannot be ascertained and hence the standard rent of the premises cannot be determined on the principles set out in Sub-Sections (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6 and consequently, the residuary provision in sub-section (4) of Section 9 would apply and the standard rent would have to be fixed in accordance with the principles laid down in that provision. This was in fact the ground on which the assessing authorities rejected the objections filed by several owners of premises contending that the standard rent of their premises should be determined on the principles set out in sub-sections (1)(A) (2)(B) or (1)(B) (2)(b) of Section 6. To quote only one of the orders made by the assessing authority in case of petitioner No. 2 in T.C. No. 75/82 it was said in the order rejecting the objections of that petitioner:

The property is built upon a lease-hold plot. This being so it is not feasible to determine the market price of land at the time of start of construction because under the terms and conditions of the conveyance deed, the land is not open for sale in the open market. As such I am not in a position to apply S. 6 of the Delhi Rent Control Act for fixing the standard rent. I have, therefore, to resort to S. 9 of the Delhi Rent Control Act for fixing the standard rent."

This argument which seems to have prevailed with the assessing authorities in rejecting the applicability of Sub Section (1)(A) (2)(b) or (1)(B) (2)(b) of S. 6 and resorting to the provisions of Sub-Section (4)

of S. 9 is wholly unfounded. Merely because the plot of land on which the premises are constructed cannot be sold, transferred or assigned except to a member of the Cooperative House Building Society and without the prior consent of the government, it does not necessarily mean that there can be no market price for the plot of land. It is not as if there is total prohibition on the sale, transfer or assignment of the plot of land, so that in no conceivable circumstance, it can be sold, transferred or assigned. The plot of land can be sold transferred or assigned but only to one from amongst a limited class of persons, namely, those who are members of the Cooperative House Building Society and subject to the Rules and Regulations, any eligible person can be admitted to the membership of the Cooperative House Building Society. There is also a further restriction, namely, that the sale, transfer or assignment can take place only with the prior consent of the government. But subject to these restrictions, the sale, transfer or assignment can take place. It cannot, therefore, be said that the market price of the plot of land cannot be ascertained. Then we have to determine what would be the market price of the plot of land on the date of commencement of construction of the premises, we must proceed on the hypothesis that the prior consent of the government has been given and the plot of land is available for sale, transfer or assignment and on that footing, ascertain what price it would fetch on such sale, transfer or assignment. Of course, when the class of potential buyers, transferors or assignees is restricted, the market price would tend to be depressed. But even so, it can be ascertained and it would not be correct to say that it is incapable of determination. There is also one other factor which would go to depress the market price and that stems from the clause in the sub-lease which provides that on sale, transfer or assignment of the plot of land, the government shall be entitled to claim so per cent of the unearned increment in the value of the plot of land and the government shall also be entitled to purchase the plot of land at the price realisable in the market after deducting therefrom 50 per cent of the unearned increment. Since the leasehold interest of the sub-lease in the plot of land is cut down by this burden or restriction, the market price of the plot of land cannot be determined as if the leasehold interest were free from this burden or restriction. This burden or limitation attaching to the leasehold interest must be taken into account in arriving at the market price of the plot of land, because any member of the Cooperative House Building Society who takes the plot of land by way of sale, transfer or assignment would be bound by this burden or restriction which runs with the land and that would necessarily have the effect of depressing the market price which he would be inclined to pay for the plot of land. We must,

therefore, discount the value of this burden or restriction in order to arrive at a proper determination of the market price of the plot of land and the only way in which this can be done is by taking the market price of the plot of land as if it were unaffected by this burden or restriction and deducting from it, 50 per cent of the unearned increase in the value of the plot of land on the basis of the hypothetical sale, as representing the value of such burden or restriction. This mode of determination of the market price has the sanction of the decision of this Court in *P.N. Sikand's Case (supra)*. We do not, therefore, think that the assessing authorities were right in taking the view that because the plot of land could not be sold, transferred or assigned except to a member of the Cooperative House Building Society and without the prior consent of the government, its market price was unascertainable and hence the standard rent of the premises could not be determined under Sub-Section (1)(A) (2)(b) or (1)(B) (2)(b) of S. 6 and had to be assessed only under Ss. (4) of S.9. We are firmly of the view that the market price of the plot of land at the date of commencement of construction of the premises was ascertainable on the basis of the formula we have indicated, notwithstanding the restriction on transferability contained in the sub-lease and the standard rent of the premises constructed on the plot of land was determinable under the provisions of Sub-Section (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6. The argument of the Delhi Municipal Corporation that in all such cases resort has to be made to the provisions of Sub-Section (4) of Section 9 for determination of the standard rent of the premises must be rejected.

We may also in this connection refer to the statement made by the Minister of State for Home Affairs on the floor of the Lok Sabha on 8th April, 1981 where the minister observed:

The Municipal Corporation of Delhi was intimated that 494 general objections for the year 1980-81 filed by the assesseees for the revision of assessment of their properties in accordance with Supreme Court Judgement were considered by the Corporation. The requests for reassessment on the basis of standard rent under Section 6 of the Rent Control Act, 1958, were considered and not found acceptable to the Corporation as the assesseees failed to produce documentary evidence as regards the aggregate amount of the reasonable cost of construction and the market price of the land comprised in the premises on the date of commencement of the construction as provided under Section 6 (2)(b) of the Delhi Rent Control Act, 1958. Accordingly, assessments were made as provided under Section 9 of the Delhi Rent Control Act, 1958. The details of the properties,

locality-wise, are given in the statement attached.

It is indeed strange that the assessing authorities should have declined to assess the rateable value of 494 properties in South Delhi on the basis of standard rent determinable on the principles laid down in Sub-Section (1)(A) (2)(b) or (1)(B) (2) b) of Section 6, merely on the ground that in the opinion of the assessing authorities "the assessee failed to produce the documentary evidence as regards the aggregate amount of reasonable cost of construction and the market price of land comprised in the premises on the date of commencement of the construction". If the assessee failed to produce the documentary evidence to establish the reasonable cost of construction of the premises or the market price of the land comprised in the premises, the assessing authorities could arrive at their own estimate of these two constituent items in the application of the principles set out in Sub-Section (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6. But on this account, the assessing authorities could not justify resort to Sub-Section (4) of Section 9. It is only where for any reason it is not possible to determine the standard rent of any premises on the principles set forth in Section 6 that the standard rent may be fixed under Sub-Section (4) of Section 9 and merely because the owner does not produce satisfactory evidence showing what was the reasonable cost of construction of the premises or the market price of the land at the date of commencement of the construction, it cannot be said that it is not possible to determine the standard rent on the principles set out in Sub-Section (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6. Take for example a case where the owner produces evidence which is found to be incorrect or which does not appear to be satisfactory; can the assessing authorities in such a case resort to Sub-Section (4) of Section 9 stating that it is not possible to determine the standard rent on the principles set out in Sub-Section (1)(A) (2)(b) or (1)(B) (2)(b) of Section 6. The assessing authorities would obviously have to estimate for themselves, on the basis of such material as may be gathered by them, the reasonable cost of construction and the market price of the land and arrive at their own determination of the standard rent. This is an exercise with which the assessing authorities are quite familiar and it is not something unusual for them or beyond their competence and capability. It may be noted that even while fixing standard rent under Sub-Section (4) of Section (9), the assessing authorities have to rely on such material as may be available with them and determine the standard rent on the basis of such material by a process estimation.

The fourth category of premises we must deal with is the category where the premises are constructed in stages. The discussion in the

preceding paragraph of this judgement provides an answer to the question as to how the rateable value of this category of premises is to be determined when the premises at the first stage of construction are to be assessed for rateable value, the assessing authorities would first have to determine the standard rent of the premises under sub-section (2)(a) or 2(b) or (1)(2)(b) or (1)(B) (2)(b) or Section 6 as may be applicable and keeping in mind the upper limit fixed by the standard rent and taking into account the various factors discussed above, the assessing authorities would have to determine the rent which the owner of the premises may reasonably expect to get if the premises are let out to a hypothetical tenant and such rent would represent the rateable value of the premises. When any addition is made to the premises at a subsequent stage, three different situations may arise. Firstly, the addition may not be of a distinct and separate unit of occupation but may be merely by way of extension of the existing premises which are self-occupied. In such a case the original premises together with the additional structure would have to be treated as a single unit for the purpose of assessment and its rateable value would have to be determined on the basis of the rent which the owner may reasonably expect to get, if the premises as a whole are let out, subject to the upper limit of the standard rent determinable under the provisions of Sub-Section (1)(A) (2)(b) of Section 6. Secondly, the existing premises before the addition might be tenanted and the addition might be to the tenanted premises so that the additional structure also form part of the same tenancy. Where such is the case, the standard rent would be liable to increase under Section 7 and such increased rent would be the standard rent of the premises as a whole and within the upper limit fixed by such standard rent, the assessing authorities would have to determine the rent which the owner may reasonably expect to get if the premises as a whole are let out as a single unit to a hypothetical tenant and in such a case, the actual rent received would be a fair measure of the rent which the owner may reasonably expect to receive from such hypothetical tenant unless it is influenced by extra-commercial consideration. Lastly, the addition may be of a distinct and separate unit of occupation and in such a case, the rateable value of the premises would have to be determined on the basis of the formula laid down by us for assessing the rateable value of premises which are partly self-occupied and partly tenanted. The same principles for determining of rateable value would obviously apply in case of subsequent additions to the existing premises. The basic point to be noted in all these cases is and this is what we have already emphasised earlier that the formula set out in Sub-Section (1)(A) (2)(b) and (1)(B) (2)(b) of Section 6 cannot be applied for determining the standard rent of an addition, as if that addition was the only structure

standing on the land. The assessing authorities cannot determine the standard rent of the additional structure by taking the reasonable cost of construction of the additional structure and adding to it the market price of the land and applying the statutory percentage of $7\frac{1}{2}$ to the aggregate amount. The market price of the land cannot be added twice over, once while determining the standard rent of the original structure and again while determining the standard rent of the additional structure. Once the addition is made, the formula set out in Sub-Section (1)(A) (2)(b) and (1)(B)(2)(b) of Section 6 can be applied only in relation to the premises as a whole and where the additional structure consists of a distinct and separate unit of occupation, the standard have to be apportioned in the manner indicated by us in the earlier rent would part of this judgement.

These are the principles on which the rateable value of different categories of properties is liable to be assessed under the Delhi Municipal Corporation Act 1957. The same principles would *a fortiori* apply also in relation to assessment of rateable value under the Punjab Municipal Act 1911. Since there are a number of writ petitions and appeals before us and they involve different fact-situations we do not think it would be convenient to dispose them of finally by one single judgement. We would, therefore, direct that these writ petitions and appeals shall be placed on Board on some convenient date so that they can be disposed of in the light of the principles laid down in this judgement.

NEW DEW,
December 12, 1984

— P.N. BHAGWATI, J.
— R.S. PATHAK, J.
— AMARENDRA NATH SEN, J.

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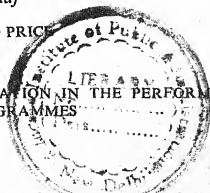
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Measurement of Urbanization: An Empirical Critique of Arriaga's Index

T. DAYAKARA RAO, K.S. REDDY, AND VINOD C. MENON

INDIA IS the second largest populated country in the world which ranks fourth in terms of urban population, the other three being the USSR, the USA and China. However, in India, urban population as a percentage of total population has been relatively low—18 per cent in 1961 and 20 per cent in 1971—and is around 23 per cent in 1981. The relatively low proportion of urban population in India and slow increase in it over time may be due to: (a) larger total population; and (b) higher rates of growth of total population. Both these factors have a depressive influence on the conventional urbanization index, viz., ratio of urban population to total population, which hence conceals the fact that urbanization has been increasing.

The present paper is exploratory in nature and makes an attempt to analyse different patterns of urbanization in India with special reference to Gujarat state by seeking to explain the degree of urbanization of various districts within the state. For this purpose, we have carried out a simple empirical exercise measuring the degree of urbanization. Section II deals with the definition of degree of urbanization that has been used in the study. In Section III the analysis of the results is presented.

MEASUREMENT OF URBANIZATION

The concept of Urbanization is a highly complex one encompassing economic, demographic, sociological and geographical processes and therefore defies any single definition. In the literature numerous definitions of urbanization are used ranging from viewing urbanization merely as an increase in the urban population at one end of the spectrum to defining it as a process involving men's interaction with others at different levels which is termed as 'urban way of life'. Between these two lie various definitions of urbanization used to understand and measure the concentration of population in a town or region and its

effects on economic, social and other aspects of society. In this context, the comment by J.H. Johnson¹ deserves special attention. Johnson states that there is a great variety of concepts and definitions in Western literature and points to the limited character of the narrow demographic definition of urbanization as a mere increase in the share of urban population which does not reflect the economic and social complexity of the phenomenon and ignores the great variety of specific forms it assumes in countries with different social systems, economic structures and different ways and levels of historic, cultural and social development. In other words, apart from the growth in the urban population as such different levels of economic development and different social structures results in different forms of urbanization. The definition one chooses, therefore, depends primarily on the purpose and focus of the study. The main focus of present paper being an examination of the patterns and degree of urbanization of various districts of Gujarat State, we decided rather to confine ourselves to the narrower definition which takes into account only demographic factors.

For measuring the degree of urbanization of various districts in Gujarat, we made use of the index suggested by Arriaga.

Symbolically, Arriaga's index,² may be shown as:

$$U_j^d = \frac{C_{ij}^2}{P_j}$$

where,

U_j^d = degree of urbanization of j^{th} region

C_{ij} = population of the i^{th} urban unit of the j^{th} region

P_j = total population of j^{th} region.

Arriaga has used this index principally to take care of two of the defects he finds with the conventional urbanizations index. The two limitations according to Arriaga are: "...first different definitions of urban population can give different ranks of urbanization when different countries are considered and second, a country with a small population and therefore, small cities may have a degree of urbanization similar to a country with a large population and large cities".³

¹J.H. Johnson, *Urbanization and Its Implications: Some General Comments*, Geoforum, 1970, No. 3.

²E.E. Arriaga, "A New Approach to the Measurement of Urbanization", *Economic Development and Cultural Change*, 1970, 18, No. 2.

³*Ibid.*, p. 208.

We are using Arriaga's index mainly because of the second limitation of the conventional index. With the help of a hypothetical example, we shall try to explain how Arriaga's index is useful in measuring the degree of urbanization. Let us suppose that two regions A and B with equal populations have similar urban populations. Further, we assume that region A has one urban centre and region B has four urban centres. Now following the conventional definition of urbanization, viz., the ratio of urban population to total population one is led to believe that urbanization in regions A and B are equal. However, Arriaga's index in the above situation would provide different results, i.e., a higher degree of urbanization of region A⁴. In the following section the analysis of the results is presented.

ANALYSIS OF RESULTS

The levels and degree of urbanisation of 18 districts of Gujarat are presented in Table 1. Dangs district has been left out of the analysis since there is not even a single urban centre in the district. It may be observed that the degree of urbanization ranges from 1626 (Ahmedabad) to 3 (Sabarkantha). Some of the significant conclusions of the analysis are as follows:

- (a) The ranks of the degree of urbanization of many district almost correspond with the ranks of the size of the large cities of the respective districts. For example, Ahmedabad, Surat, Vadodara, Rajkot, and Bhavnagar districts obtain ranks which is exactly in correspondence with the ranks of their large cities.
- (b) Broadly classifying the districts into two groups, viz., (i) districts with high degree of urbanization, i.e., with urbanization, index ≥ 50 , and (ii) districts with low degree of urbanization, i.e., urbanization index < 50 , it may be seen that 6 districts fall in the first group and 12 districts comprise the second group. Further, it is observed that the districts in the first group are also the districts with relatively large urban populations and large cities. However, levels of urbanization (proportion of urban population to total population) do not exactly correspond with the ranks of the size of the cities in various districts. For instance, Vadodara district with the third largest city in the state ranks 5 and Jamnagar district with sixth

⁴For further variations of the Arriaga's index incorporating spatial factors refer to, I.U. Kantsebovskaya, "Some Definitions of Urbanization in Geographic Literature and the Relevant Ideas", in *Urbanization in Developing Countries* (ed). S. Manzoor Alam and V.V. Pokshishevsky, Osmania University, 1976.

largest city obtains rank 4 according to the index of level of urbanization. Further, districts with same levels of urbanization, particularly those with higher levels of urbanization than the state average, are found to be having substantially different degree of urbanization. For example, (a) Surat and Rajkot; (b) Vadodara and Jamnagar; and (c) Bhavnagar and Junagadh (See Table 2). With almost same levels of urbanization Surat and Rajkot districts show varied degrees of urbanization; e.g., 348 and 110 respectively. Similar pattern is observed with respect to: (i) Vadodara and Jamnagar; and (ii) Bhavnagar and Junagadh.

TABLE 1 PATTERNS OF URBANIZATION IN GUJARAT, 1981

Name of the District	Total Population (in '000)	Urban Population (in '000)	Level of Urbaniza- tion U_j^l	Degree of Urbaniza- tion U_j^d	Adjusted Degree of Urbanization $U_j^d(A)$
1. Jamnagar	1393	522	37.47 (4)	84.67 (6)	6.04 (9)
2. Rajkot	2093	864	41.28 (3)	109.64 (4)	19.71 (1)
3. Surendranagar	1034	297	28.72 (8)	21.66 (8)	5.80 (10)
4. Bhavnagar	1877	626	33.35 (6)	108.89 (5)	7.75 (8)
5. Amreli	1079	220	20.39 (12)	6.94 (15)	4.04 (11)
6. Junagadh	2101	640	30.46 (7)	26.03 (7)	18.42 (2)
7. Kutch	1050	274	26.10 (9)	21.15 (9)	8.65 (7)
8. Banas-Kantha	1668	144	8.63 (18)	4.15 (17)	1.43 (17)
9. Sabar-Kantha	1502	149	9.92 (17)	2.84 (18)	1.83 (16)
10. Mehsana	2459	511	20.04 (14)	12.43 (13)	9.80 (6)
11. Gandhinagar	289	62	21.45 (11)	13.30 (12)	0.00 —
12. Ahmedabad	3876	2781	71.74 (1)	1625.81 (1)	10.32 (5)
13. Kheda	3015	606	20.10 (13)	12.01 (14)	11.83 (3)
14. Panchmahal	2321	257	11.07 (16)	6.81 (16)	3.76 (12)
15. Vadodara	2558	950	37.14 (5)	245.69 (3)	2.49 (14)
16. Bharuch	1296	242	18.67 (15)	14.02 (11)	3.20 (13)
17. Surat	2493	1087	42.76 (2)	348.22 (2)	2.05 (15)
18. Valsad	1774	388	21.87 (10)	20.06 (10)	10.59 (4)

NOTE: Figures in parenthesis indicate the ranks of the respective districts.

SOURCE: *Census of India, 1981.*

The reason for this type of behaviour may be explained in terms of the proportion of population of the largest city of the district to the total urban population of the respective district. As explained in Section I, Arriaga's index of degree of urbanization results in a relatively higher score for those districts in which the urban population of the district is more concentrated, i.e., where population of the largest

urban centre expressed as a proportion of total urban population is high.⁵

From Table 2, it is observed that though Surat and Rajkot districts have roughly same proportions of urban populations, the degree of urbanisation of Surat is more than thrice that of the score of Rajkot. This is mainly because in Surat district, the city of Surat alone accounts for approximately 72 per cent of the urban population of the district whereas in the case of Rajkot district the corresponding proportion is around 52 per cent. The same explanation holds good for the other two pairs of the districts, viz., (a) Vadodara and Jamnagar, and (b) Bhavnagar and Junagadh.

Lastly, we have also made an attempt to examine the change in the ranks of degree of urbanization of various districts after eliminating the effect of the largest urban centre of the respective district. The results are presented in Table 1. For the sake of convenience, we call this as Arriaga's adjusted index, $U_j^{d(A)}$.⁶ A comparison of the two indices of degree of urbanization may throw some light and makes it possible to draw some inferences on the patterns of urbanization specifically with respect to the dispersion of urbanization.

By dispersion of urbanization, we refer to the relative concentration or diffusion of urban population within the district among urban centres. In other words, the larger the number of urban centres among which a given population is scattered/distributed the higher the diffusion and *vice versa*.

It is seen from the table that when the influence of the largest urban centre of the district is eliminated, the ranks undergo a very large change. Rajkot district with rank 4 according to unadjusted index, obtains rank 1, Surat with rank 2 appears with rank 15, Kheda ranking 14 obtains rank 3 as per the adjusted index and so on. The major inference that has to be drawn is that the patterns of urbanization are significantly different among the districts. Even with respect to the high degree urbanization districts, viz., Ahmedabad, Surat, Vadodara, Rajkot, Bhavnagar, Jamnagar and Junagadh, the patterns of urbanization seem to be dissimilar with respect to the dispersion of urbanization. Among these districts, the impact of the largest urban centre of the

⁵It is to be noted that the upper limit of the degree of urbanization, according to Arriaga's approach is the total population of a district/region (if the entire population of a district/region is to be treated as urban) and the lower limit is zero (absence of urban units in a district/region). In Symbols; $0 < U_j^d < \text{total population}$.

⁶
$$U_j^{d(A)} = \frac{C^2 - C_j^2}{P_j - C_{ij}}$$
 where C_{ij} is the population size of the largest city in the j^{th} region.

respective district upon its degree of urbanization is much more pronounced in the case of Surat, Vadodara and Jamnagar districts. On the other hand, Rajkot, Junagadh and to some extent Ahmedabad districts exhibit a wider spread of urbanization. Another interesting finding of their exercise is that in the group of the lower degree of urbanization districts, Kheda shows a high dispersion of the degree of urbanization, i.e., widespread of urban population among many small urban centres.

TABLE 2 CONCENTRATION OF URBANIZATION

	U_j^L	U_j^d	Percentage of the largest city to the total urban population
Surat	42.76 (2)	348.22 (2)	71.5
Rajkot	41.28 (3)	109.64 (4)	51.5
Vadodara	37.14 (5)	245.69 (3)	78.4
Jamnagar	37.47 (4)	84.67 (6)	56.2
Bhavnagar	33.35 (6)	108.89 (5)	49.2
Junagadh	30.46 (7)	26.03 (7)	18.7

SOURCE: *Census of India, 1981.*

In conclusion, this exploratory exercise argues that the emphasis on proportion of urban population especially in the single largest urban unit distorts the pattern of urbanization in the region. Further, it is felt that a more meaningful analysis of urbanization must incorporate other socio-economic factors rather than relying mainly on demographic factors. □

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*Developing A Computer Based Urban Information System in India: Problems and Prospects**

P.K.S. NAIR

URBAN PLANNING, being predominantly a mental activity, is information dependent. Developments in quantitative techniques, particularly in physical sciences, have made significant impacts on urban planning methods. Developments in electronic and space technology have made it possible to gather vast amount of data from various sources, process them, and transmit the information from one part of the world to another in a very short time span. Due to a combination of these developments, computer based data management system is progressively being introduced in urban planning process. In this paper, an attempt has been made to introduce the concept of data management system, indicate its scope in urban planning and enumerate its implications on Indian urban planning scene.

CONCEPTS

"Data is the recorded description (measurement) of attributes . . . data consists of two parts: the data element and the data item" (UNCHS, 1981). Data element is the name of the object recorded and data item provides the measurement. Information is processed data with specific purpose of its use. The data management systems can be polarised into two types, for emphasis, to contrast data bank and information system. "The first approach would suggest the creation of general purpose data bank catering for as many present and potential users of data as possible. Creating of a data bank would involve the gathering together of whatever data was thought to be relevant from whatever source and in whatever form it could be obtained . . . The contrasting philosophy holds that the data base in an

*Paper prepared for a seminar held in Development Planning Unit, London, in December 1983.

information system should be derived from automating processes and procedures of management and routine administration" (Stuart Cowie, 1974). J. Willis (1972) defines: "A working definition of an information system distinguishes it from a data bank, which is simply a set of files of disaggregate data that can be processed to provide a variety of summary tabulation. An information system is an image of the management process it serves. It is a data bank linked to a set of procedures for collecting data and coupled to a set of techniques that can transform data into information for decision making and transmit them to decision points". Another definition of urban and regional information system is that it is "one involving the sequence of steps in the synthesis of information from diverse data inputs by the use of automation to bear on the definition, display and solution of the set of problems relating to planning, political and management decision in urban affairs" (B.G. Hutchinson, 1974). A computerbased data bank or information system is that in which electronic computer plays a significant part in the various stages of the system's operations such as data collection, storage, processing, analysis and dissemination.

Data bank has several limitations. Stuart Cowie (1974) observed that data bank would "include data files in different departments, data collected for particular purpose in special surveys and data obtained from secondary sources such as, for example, the census of population. Such a collection of data tend to be unsystematic in its coverage and *ad hoc* in nature. There would be no certainty that data stored will be required in future. It would tend to be static in that once collected and stored, a data file would be regarded as a self-contained entity with no arrangements made to keep it regularly up-to-date. Data files are likely to be incompatible one with another." Data bank is a collection of data relevant to specific topic "without regard to the format of the data or source" (UNCHS, 1981). Since information system is specifically a user-oriented approach, the scope of this system is discussed in the ensuing paragraphs of this paper.

SCOPE

Whether one adopts the conventional long-term comprehensive master plan approach or the more recent structure plan approach or the complex systems dynamics method, whether one attempts goal-oriented or problem-oriented planning, whether it is at national, regional or local level, information is of critical importance to planning activity. It is through information that one identifies the current and future problems, formulate goals and objectives, analyses trends and forecasts future scenario, works out alternative courses of action, evaluate them for choosing the one to be adopted, monitors the implementation

and finally undertake review and assessment. The whole process is, almost entirely, using existing information and generating new information. In the absence of information, there cannot be any mental activity; and, therefore, no planning is possible. Actually we are in a situation of having reliable information, identify right or wrong problems, suggest correct or incorrect solutions and thus prepare a good or bad plan. The role of information in the urban planning process, according to Erlet Carter (1974) :

1. Decision to adopt planning—the initial decision implies that the planner must have an understanding of his power to promote a better environment and also of desirable quality and standards;
2. Formulation of goals and objectives—information on stock of situation such as population and its composition, densities, fit houses, standards, constraints, economics and financing of development of land and transport, powers of public agencies—in short, an inventory of the current situation;
3. Outline alternative courses of action—information needed for projection, modelling and to study how the system will change over time as a result of interventions;
4. Evaluation of courses of action—information on social values, cost-benefit, in order to select appropriate action programmes;
5. Implementation stage—information to keep plan continuously under review and check the assumptions and goals on which plan was based through updated data base; and
6. Review and assessment—information required for examination of the completed development including critical appreciation of standards and actual use of facilities.

Information used by urban planners are of various forms: statistical (qualitative or quantitative), descriptive or geographical. Most of these are gathered from secondary sources and some from primary sources. It is from these vast mass of data, one has to select and sort the data required for urban planning; and process and analyse them into meaningful information for the use of urban planner. A number of problems arise during this process, the most common among them are: accessibility, availability, time lag, reliability, compatibility and consistency. Moreover, a wealth of data is irretrievably lost because of bad filing system (this is particularly true of data collected for administrative purpose). *A well planned information system is the answer to these problems.*

The role of information in the urban planning process has already been indicated in this paper. This gives a rough indication of the vast

canvas of data needs of an urban planner. His areas of interests are comprehensive land-use, land values, population, economy, employment, transport, housing, education, health, power, water supply, recreation, etc. And all these factors are inter-related. This would mean that the analytical needs are of *complex* nature. This is particularly true if one is attempting systems and modelling techniques, some of which cannot be done without the aid of a computer. Urbanisation is a dynamic process and there is a need to periodically monitor the changes happening on critical aspects, requiring constant updating and continuous feedback of information to decision makers. To a large extent, this is *repetitive* exercise. The vastness, complexity and repetitiveness justifies the introduction of computer in developing urban information system. Moreover, 'unlike most other fields, planning requires not only a technology capable of high-speed statistical and mathematical operations but also one capable of expressing such calculations in spatial form. The additional technological developments in mapping data came into general use in 1960s (Chapin and Kuiser, 1979). Mention may be made here of the developments in direct computer interpretation capability of remote sensed data, compographics, interchange and synthesis of statistical and geographical modes of data, software enabling direct interaction between planner and the computer and lastly the progressive cost reduction of the computer system.

It is stated that "a data base implies that a data bank exists from which relevant data elements may be drawn" (UNCHS, 1981). Without having a sufficiently satisfactory statistical system, it may not be possible to set an information system. Data collected by other agencies (both general and special purpose) and data generated by planning departments through their normal administrative and routine applications could be a starting point for building up an urban information system. Critical data gaps have to be bridged through special arrangements. Data dependency on other agencies would have some inherent problems such as incompatibility, heterogeneity in file structure, difference of the areal unit of aggregation, timeliness, data flow. Necessary coordination mechanisms are to be organised to tackle these problems.

UNCHS (1981) identified three pre-conditions which must be investigated before any decision is taken about the level of information systems development. They are the government data field, the institutional environment and the technological environment. The government data field comprises of censuses, surveys, administrative files, maps, remote sensing and documents. "The problem is not lack of data but the dispersal of the data in many forms through levels of government" (UNCHS, 1981). The institutional environment in which an information system has to operate would determine the nature of the

system. The existing structure cannot be expected to adapt quickly to a totally computerised information system. The existing data management technology, availability of skilled personnel and accessibility of data are some of the institutional aspects which determine the limits and scope of computer based information system in urban planning process. The technological environment consists of technology. Obviously, these three factors are related to each other and a detailed analysis is necessary to assess the scope of information system. Robinson (1982) also indentified "major limitations on the application of information systems at the local level are manpower, hardware and software. The success . . . is dependent on how these limitations are jointly overcome against a background of financial and staffing scarcity".

IMPLICATIONS

At the outset, a brief account of the Indian planning system will be useful. The exclusive and joint responsibilities of the central and state governments are given in the Constitution of India; and according to this, urban development comes under the exclusive purview of state government. All the same, the central government have an advisory and coordinatory role to play; and have direct responsibility as far as the urban development of the union territories is concerned. In the central government, the Ministry of Urban Development among other matters, deals with urban development. The technical organisation, at central level, is the Town and Country Planning Organisation. Urban development is treated as a separate sector in the National Five Year Plan and the National Planning Commission has a section dealing on this subject. Other organisations at national level are: Housing and Urban Development Corporation, a financing agency; National Institute of Urban Affairs, a consultancy-research institution; and Centre for Urban Studies of the Indian Institute of Public Administration. Similarly, at state level there are ministries and state Town Planning Departments. At the local level, the cities and towns are managed by local bodies such as Corporations, Municipalities/Municipal Committees/Municipal Boards, Notified Area/Town Area Committees, Cantonment Boards, Town Panchayats, etc. For major cities and towns, the state governments have constituted Urban Development Authorities for promoting development activities and implementing and monitoring various programmes. There are a number of other academic and professional institutions concerned with urban planning. The urban information system has to meet the major information needs of these agencies operating at various levels.

India has a long standing and well spread out statistical system.

Population data on census basis are available on a continuous ten year interval from 1901. There is a Central Statistical Organisation responsible for providing statistics on important aspects such as national income, economy, education, health, transport, communication, etc. etc. It has state level counterparts, spread out up to district levels. Every five years, a national sample survey is launched to collect data on some important economic sector on which data are not normally available. With regard to mapping, the Survey of India is a well established institution and periodically updates maps for all parts of the country. Other mapping departments are Geological Survey of India, Forest Departments, Soil Survey Departments, Land Survey Departments (for revenue purposes), Town Planning Organisations (for urban land use), National Atlas and Thematic Mapping Organization, etc. Another important agency which has been set up to interpret satellite imagery is the National Remote Sensing Agency.

There exists a good network of computer systems in India. These are more or less independent and direct linkage are yet to be established. Now micro-computer has made an inroad into the Indian computer scene. There are skilled manpower available and there exists a number of training institutions at general level. Spatial data processing is of recent origin and now a small group of committed people are engaged in further development and its promotion. Urban and Regional Information System (URIS) has now been recognised as an important area of activity and some limited budget allocation has been provided.

By and large, even now, urban planning in India is a master plan oriented approach. Concepts such as new towns, garden city, ring town, satellite town, regional planning, growth centre and more recently structure plan (for Madras) have been imported from western countries. At times, there has been some attempt to arrive at a national/regional settlement and urbanisation policy. Big city versus small and medium town conflict exists at policy level. Emphasis is now given to quick and effective implementation of major urban development programmes. The urban planning can be seen in a state of flux. All the same, the need for understanding the dynamics of urban systems, continuous monitoring of urbanisation, integration of sectoral and spatial elements of developments, making urban development a positive instrument towards the overall social and economic development of the nation, etc., is being strongly felt by Indian planners. All these would require a strong information support.

The Town and Country Planning Organisation took the initiative of the development and promotion of URIS in India. Initially a document on the data used generally by the urban planners, on the basis of the various plans prepared, was made and discussed in detail in a seminar

of experts held in 1979. One of the major recommendations made in the seminar was the setting up of a Steering Group to identify the data needs and to suggest ways and means to implement the URIS. The Steering Group, consisting of data source, data user and data processing representatives, has been set up and they have identified the information needs, periodicity, data source agency, etc. Now they are studying the processing forms and the organisational arrangements. One regional seminar and two training workshops were arranged by the Town and Country Planning Organization. On the basis of the needs identified by the Steering Group, pilot studies in two towns are now being carried out to design the system. There has been some international collaboration in this area of activity. Dr. Coiner, UN expert, undertook a month long study in India and prepared a feasibility report on information system. In 1980 and 1982, two study teams from India visited United Kingdom under the ODA technical assistance programme. In 1981, a ten day international regional workshop on data management was organised by UNCHS in Madras.

Meanwhile the Town and Country Planning Organisation is designing three information systems on priority basis. They are:

1. MONIS—Monitoring Information System of a centrally sponsored project known as Integrated Development of Small and Medium Towns;
2. URDIS— Documentation Information System on Urban Research;
3. Organisation and Manpower Information System.

The National Institute of Urban Affairs has developed a Municipal Information System and this is likely to be updated. It may be mentioned here that URIS is included as one of the distributive system known as Environmental Information System (EVNIS).

CONCLUSION

Urban Planning is a mental activity and therefore requires information in all the stages of planning processes. It is a unique process. Therefore the information needs are of specific nature. The existing data systems do not meet the requirements of urban planners and there is thus a need to develop an Urban Information System. The data needs being vast (because of the comprehensive areas of interests), the analytical process being complex (because of the interrelationships of multiple factors), and the repetitiveness of a significant part of the planning process—these factors justify utilisation of a computer based information system. Still we see that a full scale urban information

system has not been developed in many countries. This is due to the fact that some of the pre-requisites needed for establishing the system are not currently existing. They are the availability of a satisfactory statistical system, technological environment and institutional environment. The current planning culture and commitment of decision makers are also important factors for speedy implementation of the information system. In India, the need has been recognised and some modest progress has been achieved in developing the URIS. Some partial systems have been designed on priority areas of interest. There has been involvement of some of the international agencies also. All these developments and interests are expected to converge and enable establishment of URIS in the country in a year or two. □

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3. Stuart Chapin, *et al*, *Urban Land Use Planning*, 1979.
4. Stuart Cowie, *Information Systems For Planning Some : Emerging Principles in* Perraton and Baxter' (eds.), 1974
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Informal Sector in Urban Labour Markets: A Review of Literature

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THE ECONOMIES of the Third World countries consist mainly of small and tiny production organisations mostly run on an informal and self-employed basis. In general, rural and agricultural activities are almost carried out on this basis. This sector has a very significant role in urban and industrial sectors. The dualistic nature of the urban economy had been recognised by the researchers in many of the Third World countries. The informal sector contains the mass of the working poor whose productivity had been much lower than in the formal urban sector. The individuals dependent on informal income opportunities were labelled as the urban proletariat. Where the earnings received by such persons were below the legal minimum wage, were considered to be underemployed¹. There are others who consider them to be not underemployed but under-paid². The earnings of the employees were not enough to meet their minimum needs. Therefore, they were not far away from poverty and malnutrition.

The informal sector activities are primarily those of petty traders, street hawkers, shoe-shine boys and other groups on the streets of the towns and cities. Due to the rapid urbanisation, employment in the informal sector has been growing faster than the formal sector despite some obstacles and absence of government support or regulation. It thus in effect, became the employer of the last resort. The employment, earnings, entrepreneurship, organisational and legal aspects and working and living conditions of the employees in informal sector have a significant role in the Third World metropolis.

This paper briefly reviews the literature on the informal sector in urban labour markets. The research studies and other papers in India

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¹S.V. Sethuraman, "The Urban Informal Sector: Concept, Measurement and Policy", *International Labour Review*, Vol. 114, No. 1, July-August 1976, pp. 69-81.

²Symposium on Poverty, *Financial Express*, September 20, 1982.

and other countries are dealt with separately under different headings. Almost all the studies have considered such aspects as the concept of informal sector, urban labour force in formal and informal sectors, poverty, housing, migration, incomes and wages, entrepreneurship, etc., on the basis of their major focus. This review is based on the literature that the researcher had the opportunity to peruse. Though it may not be comprehensive it certainly indicates the vast amount of interest which the subject has already evoked among the academicians and policy-makers.

CONCEPT AND SCOPE

The concept of informal sector was first used in a study in Ghana³ and then taken up in the report of the ILO/UNDP employment mission to Kenya⁴. Subsequently, it gained considerable currency in the literature. Jan Breman examined the utility of the concept of informal sector in a small town in Western India⁵ and considered aspects relating to the origin of the concept, size of informal sector, fragmented labour market and labour force. Sethuraman⁶, Joshi⁷ and Papola⁸, also sought to explain the concept in detail. Of these, Sethuraman's work is the pioneering.

URBAN LABOUR FORCE AND LABOUR MARKET

Mazumdar⁹, Gay Standing¹⁰ and Koji Taira¹¹ examined the dual labour markets in the less developed countries, pattern of urban employ-

³Keith Hart, "Informal Income Opportunities and Urban Employment in Ghana", *Journal of Modern African Studies*, op. cit., pp. 61-89.

⁴ILO., "Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya", *The Author*, Geneva, 1972.

⁵Jan Breman, "A Dualistic Labour System? A Critique of the Informal Sector Concept", *Economic and Political Weekly*, November 27, 1976, pp. 1870-1876; December 4, 1976, pp. 1905-1908, December 11, 1976, pp. 1939-44.

⁶S.V. Sethuraman, "Towards a Definition of Informal Sector", World Bank Staff Working Paper, Draft for Comment, February 28, 1974, p. 9.

⁷Heather Joshi, "The Informal Urban Economy and its Boundaries", *Economic and Political Weekly*, March 29, 1980, pp. 638-44.

⁸T.S. Papola, "Informal Sector: Concept and Policy", *Economic and Political Weekly*, May 3, 1980, pp. 817-24.

⁹Mazumdar Dipak, "Analysis of the Dual Labour Markets in LDC's", in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, International Institute for Labour Studies, Geneva, 1977, pp. 13-33.

¹⁰Gay Standing, "Urban Workers and Patterns of Employment", in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, International Institute of Labour Studies, Geneva, 1977.

¹¹Koji Taira, "International Labour Markets, Ability, Utilisation and Economic Growth", in Subbaiah Kannappan (Ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 49, 62.

ment and growth of internal labour markets. These studies emphasised the conceptual and theoretical aspects of urban labour markets. Moir¹² attempted to map out some of the dimensions of time series relationships between labour force, structure, urbanisation and strength of such time-series relationships were an essential step in allowing governments to develop adequate urbanisation policies for incorporation into development planning efforts. The relationships between urbanisation levels and the industrial structure of the labour force were also analysed by Moir¹³. Hartman¹⁴ evolved a classification system using the published data on the labour force participation pattern of various countries. Friedmann and Sullivan presented a heuristic model of the urban labour market in developing countries¹⁵. Hill discussed the determinants of labour supply for an individual member of a family in poverty¹⁶. The urban labour market and income distribution with reference to Malaysia was examined by Mazumdar¹⁷ and the economies of labour force participation was reviewed by Fleisher¹⁸. Sinclair¹⁹ described the growth of cities, population, migration, employment, emergence and short-comings of the informal sector.

Another study focused on the Japanese experience with labour market segmentation in the period Japan made her transition from backward agrarianism to fullblown industrialisation²⁰. Teshome Mulat²¹

¹²Hamil Moir, "Dynamic Relationships between Labour Force Structure, Urbanisation and Development", *Economic Development and Cultural Change*, Vol. 26, November, 1977.

¹³Hazel Moir, "Relationships Between Urbanisation Levels and the Industrial Structure of the Labour Force", *Economic Development for Cultural Change*, Vol. 25, No. 1, October, 1976.

¹⁴Moshe Hartman, "Typology of Countries by Labour Force Participation Patterns", *Economic Development for Cultural Change*, Vol. 25, No. 2, 1977, pp. 349-62.

¹⁵John Friedmann and Flore Sullivan, "The Absorption of Labour in the Urban Economy: The Case of Developing Countries", *Economic Development for Cultural Change*, Vol. 22, November 3, April 1974, pp. 385-413.

¹⁶C. Russel Hill, "The Determinants of Labour Supply for the Working Urban Poor, in Glen G. Gain and Harold W. Watts (eds.), *Income Maintenance and Labour Supply*, Academic Press, New York, 1973, pp. 182-204.

¹⁷D. Mazumdar, "The Urban Labour Market and Income Distribution: A Study of Malaysia", Oxford University Press, New York, 1981.

¹⁸B.M. Fleisher, "The Economics of Labour Force Participation: A Review Article", *Journal of Human Resource*, Spring, 1971, pp. 138-48.

¹⁹Sinclair W. Stuart, "Urbanisation and Labour Market in Developing Countries", Croomhelm, London, 1978.

²⁰Solomon B. Levine, "Labour Market Segmentation in the Economic Development of Japan" in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 107-116.

²¹Teshome Mulat, "Employment and Wages in the Ethiopian Manufacturing Sector" in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 117-30.

explored the employment and wage levels in the Ethiopian manufacturing industry. Kannappan²² examined the magnitude of the urban labour market, urban employment practices and urban employment in Khar-toum.

Theoretical aspects of modern and traditional urban labour markets were explored by James G. Scoville²³. Henry Rempel studied the operation of urban labour markets in Kenya²⁴. Thomas reviewed some issues of manpower planning and worker's self-management with reference to Yugoslavia²⁵.

FORMAL AND INFORMAL SECTORS

As formal labour market transactions increase, the institutional structure of the market develops in a number of respects. Labour is more able to form, organise and maintain trade unions. In the same way, the public sector assumes an increasingly important role in determining wages, both as an employer in its own right and as an arbiter of private sector. Wage rates through legislation and the pronouncement of wage tribunals, vigorous pursuit of improvements in the conditions of employment can help to cause labour market dualism. That is a situation in which workers of similar abilities are paid substantially different wages depending on the sector of employment. Such a situation has an inherent danger of technological dualism, which is apt to worsen as the gap widens between the traditional labour intensive models of production and the capital intensive technologies of the modern sector²⁶. This dualistic nature of the urban economy was recognised by the researchers in many developing nations. McGee²⁷ observed that most cities of the Third World can be seen as "consisting of two juxtaposed systems of production—one derived from capitalist form of production, the other from the peasant system of production".

²²Subbaiah, Kannappan "Urban Labour Market Structure and Employment Issues in the Sudan" in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 85-106.

²³James G. Scoville, "Sectoral Interdependence in Urban Labour Markets and Variations in the Social and Economic Environment" in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 71-84.

²⁴Henry Rempel, "The Operation of Urban Labour Markets in Kenya", in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 171-79.

²⁵H. Thomas, "Manpower Planning and Labour Markets—The Yugoslav Case" in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 191-202.

²⁶The World Bank, "World Development Export", *The Author*, Washington DC, August 1979, p. 54.

²⁷T.G. McGee, "Peasants in the Cities: A Paradox, A Paradox. A Most Ingenious Paradox", *Human Organisation* Washington, Summer, 1973, p. 158.

Geertz²⁸ described the two systems respectively as the 'firm-centred' economy and the 'bazar-type' economy. They had also been referred to as 'upper' and the 'lower' circuits²⁹. According to Mazumdar³⁰ the formal and informal distinction would apply to the urban labour market, which would be an aid to the study of income distribution in the urban economy. He explained the conceptual issues, profile of the labour force, earnings and dual urban markets. Nihan and Jourdain³¹ described the findings of a survey on the informal sector in Nouakchott, the capital of Mauritania. The survey was the first in a series planned by the International Labour Organisation in five African cities under its Research Programme on "Skill Acquisition and Self-Employment in the Urban Informal Sector". The ultimate aim of this programme was to investigate, in close cooperation with governments concerned, training and employment potential of the modern informal sector covering the main types of business activity—manufacturing, services and building, which could be expanded if given appropriate assistance. Nihan, *et al.*,³² explained the results of the study of the situation in Lome, which the Togolese Ministry of Planning and Industrial Development requested the ILO to carry out within the framework of the latter's World Employment Programme. Employment, apprentice training, incomes and capital investment, etc., were focused attention in the paper. Urbanisation, migration and employment aspects were described by Fapehunda³³. The contribution made by the informal sector to the national economy in terms of employment, income, transmission of skills and the ways in which informal sector undertakings function were described by Demol and Nihan³⁴.

URBAN EMPLOYMENT

ILO carried out series of studies in six major cities of the Third

²⁸ Clifford Geertz, "Pedlars and Princes: Social Change and Economic Modernisation in Two Indonesian Towns—Chicago and London", University of Chicago Press, Chicago, 1963.

²⁹ Milton Santos, "The Spared Space—The Two circuits of Urban Economy and Their Spatial Repercussion". Mathued. London (undated).

³⁰ Dipak Mazumdar, "The Urban Informal Sector", *World Development*, Vol. 64, No. 8, 1976, pp. 655-79.

³¹ Georges Nihan and Robert Jourdain, "The Modern Informal Sector in Nouakchott", *International Labour Review*, Vol. 117, No. 6, November-December, 1978.

³² George Nihan, *et al.*, "The Modern Informal Sector in Lome, *International Labour Review*, Vol. 118, No. 5, September-October, 1979, pp. 631-44.

³³ J. Fapehunda Olanrewaju, "Urbanisation and Employment in Developing Countries: The Role of the Informal Sector", *Labour and Society*, Vol. 5, No. 1, January, 1980, pp. 31-48.

³⁴ Brik Demol and Georges Nihan, "The Modern Informal Sector in Yaounde", *International Labour Review*, Vol. 121, No. 1, January-February, 1982, pp. 77-78.

World—Calcutta³⁵, Jakarta³⁶, Abidjan³⁷, Lagos³⁸, Sao Paulo³⁹ and Bagota⁴⁰ and the estimated size of the informal sector in these cities was 43 per cent (1971), more than 40 per cent (1967), 31 per cent (1970), 50 per cent (1974) and 53 to 58 per cent (1970) respectively. All these studies focused attention on the aspects of urban development, employment, migration, etc. Sethuraman's study briefly reviewed the theoretical aspects and provided for an empirical evaluation of the situation in Jakarta⁴¹. Berry's study was concerned with the factor proportions and urban employment in developing countries⁴². Kritz and Ramos dealt with the measurement of urban under-employment⁴³. A survey was conducted on non-agricultural activities in rural areas of Kenya⁴⁴. Howard Aldrich's⁴⁵ paper presented the conditions under which ethnic or racial minorities enter small shop keeping in large numbers. The employment in inner city areas was discussed by another Barbars M.D. Smith⁴⁶.

URBAN POVERTY AND HOUSING

Sada⁴⁷ examined the major features of urban poverty in Lagos. Akin

³⁵Harold Lubell, "Urban Development and Employment: The Prospects for Calcutta", ILO, Geneva, 1974.

³⁶S.V. Sethuraman, "Jakarta: Urban Development and Employment", ILO, Geneva, 1976.

³⁷Heather Joshi, Harold Lubell and Jean Mouly, "Abidjan: Urban Development and Employment", ILO, Geneva, 1976.

³⁸J. Olanrawajo Fapohunda and Harold Lubell, Urban Development and Employment, ILO, Geneva, 1978.

³⁹Kalman Schaefer and Cheywa R. Spindel, Assisted by Sao Paulo, "Urban Development and Employment", ILO, Geneva, 1976.

⁴⁰Harold Lubell and J. Douglas McCallum, "Bagota: Urban Development and Employment", ILO, Geneva, 1978.

⁴¹S.V. Sethuraman, "Urbanisation and Employment—A Case Study of Jakarta", *International Labour Review, op. cit.*, Vol. 112, Nos 2-3, August-September 1977, Vol. 27, No. 3.

⁴²R.A. Berry, "Factor Proportions and Urban Employment in Developing Countries", *International Labour Review*, March, 1974, pp. 217-33.

⁴³Ernesto Kritz and Joseph Ramos, "The Measurement of Urban Underemployment: A Report on Three Experimental Surveys", *International Labour Review*, Vol. 113, No. 1, January-February, 1976, pp. 115-127.

⁴⁴Nairobi Urban Study Group, "Survey on Non-agricultural Rural Enterprises", *The Author*, Nairobi, 1969.

⁴⁵Howard Aldrich, "Asian Shop Keepers as Middleman Minority: A Case Study of Small Business in Wardswoth", in Alan Evans and David Eversle (eds.), Heinemann, London, 1980.

⁴⁶M.D. Smith Barbara, "Employment in Inner City Areas: A Case Study of the Position in Small Health", Birmingham, 1974, in Alan Events and David Everaley (ed.), *op. cit.*

⁴⁷P.O. Sada "Urban Poverty—The Case of Lagos", in Poverty in Nigeria, Proceedings of the 1975 Annual Conference of the Nigerian Economic Society, 1975.

Ogunpola and Oladeji Ojo⁴⁸ and Lalal⁴⁹ made a critical attempt on the housing situation in metropolitan Lagos with a view to using it as an indicator of the level, degree and diversification of poverty in that part of the country. Aderante Adapoju's⁵⁰ paper stressed poverty in the medium size towns and the role of migration in alleviating or further exacerbating poverty among the migrants. Gustav F. Papanek⁵¹ examined that there were substantial differences among the groups of the poorest urban dwellers and shed light on the limits and consequences of various government policies.

Peek⁵² made an attempt to examine income trends to determine as to what extent urban poverty had been affected by recent economic growth. He wrote that either indicators of poverty such as health, nutrition and housing were not considered, although these were probably as relevant as income for a study of poverty, because there were no reliable and disaggregated data which could be used for that purpose. Mathare Valley⁵³ survey on the illegal squatter settlement areas revealed that over one-third of the African male and female adults had been living in such settlements. Another study analysed the structure of urban slum dwellings and the urban renewal scheme in Tokyo⁵⁴.

Frakmann surveyed employment in the service sector in Subsaharan Africa⁵⁵. Lourdes Arizpe's⁵⁶ study dealt with the women in informal labour sector in Mexico city.

MIGRATION

Rural-urban migration accounted for more than half of the growth

⁴⁸Akin Ogunpola and Oladeji Ojo, "Housing as an Indicator of Urban Poverty: The Case of Metropolitan Lagos", in *Poverty in Nigeria*. *op. cit.*

⁴⁹M.I. Lawal, "Housing in Lago State", Unpublished M.A. Thesis, University of Nottingham, 1972.

⁵⁰Aneranti Adepoju, "Nigration and the Urban Poor in Nigeria's Medium-Size Towns" in *Poverty in Nigeria*, *op. cit.*

⁵¹Gustav F Papanek, "The Poor of Jakarta", *Economic Development for Cultural Change*, Vol. 124, November-October, 1975, pp. 1-28.

⁵²Peter Peek, "Urban Poverty, Nigration and Land Reform in Ecuador", World Employment Programme Research Working Paper, WEP 10-6/WP 24, *International Labour Organisation*, Geneva, 1979.

⁵³Mathare Valley, "A Case Study of Uncontrolled Settlement in Nairobi", University of Nairobi, Housing Research and Development Unit, 1969.

⁵⁴Hiromichi Ishizuka, "The Slum Dwellings and the Urban Renewal Scheme in Tokyo, 1968-1973, *Development Economics*, Vol. XIX, No. 2, June 1981, pp. 169-193.

⁵⁵K. Frakmann, and H. Charle, "Employment in the Service Sector in Sub-Saharan Africa", *Journal of Modern Africa Studies*, II (2), 1973.

⁵⁶Lourdes Azizpe, "Women in the informal Labour Sector: The Case of Mexico City", *Signa Journal of Women in Culture and Society*, Autumn, Vol. 3, No. 1, 1977, pp 25-37.

rate of the urban population in the less developed regions⁵⁷. Walter Elkan⁵⁸ studied labour migration to South Africa from Botswana, Lesotho and Swaziland, the BLS countries as they are now called, and the social and economic consequences of migration for the sending countries. The study sought to relate migration to South Africa and its impact on the economies of the BLS countries.

The rural-urban migration and government policies in low-income countries were explained by Peek and Standing⁵⁹. Oberai examined migration, unemployment and the urban labour market of Sudan⁶⁰. Richardo R. Moles reviewed the social security measures for migrant workers in Latin America.⁶¹

WAGES AND INCOMES

Stanley, P. Stephenson's⁶² model focused on in school labour force status as a determinant of post-school wage rates and Olaloye⁶³ studied the level of average wage earnings in the Nigerian manufacturing industries and analysed the important factors that influence it.

A survey on Sweated Labour and Wages in Malaysian manufacturing stressed the need for the introduction of minimum wage legislation to protect the interests of such employees⁶⁴. Zvi Susman presented a theoretical framework by analysing some aspects of the interdependence of wage structures in the dual economy of Mandatory Palestine between the two World Wars⁶⁵. Isbister evaluated the performance of some

⁵⁷United Nations Population Division, "The Components of Urban and Rural Populations Change: Tentative Estimates for the World and Twenty-four Regions for 1960, *The Author*, New York, 1972.

⁵⁸Walter Elkan, "Labour Migration from Botswana, Lesotho and Swaziland", *Economic Development for Cultural Change*, Vol. 28, No. 3, April, 1980.

⁵⁹Peter Peek and Guy Standing, "Rural-Urban Migration and Government Policies in Low-Income Countries", *International Labour Review*, Vol. 118, No. 6, November-December, 1979, pp. 747-62.

⁶⁰A.S. Oberai, "Migration, Unemployment and the Urban Labour Market: A Case Study of the Sudan", *International Labour Review*, Vol. 115, No 2, March-April 1977, pp. 211-23.

⁶¹Richardo R. Moles, "Social Security for Migrant Workers in Latin America", *International Labour Review*, Vol. 121, No. 2, March-April 1982, pp. 155-168.

⁶²Stanley P. Stephenson, Jr., "In-School Labour-Force Status and Post-School wage Rates of Young Man, *Applied Economics*, Chapman and Hill Ltd., London, 1981, p. 13.

⁶³A.O. Olaloye, "Wage Earnings in Nigeria's Manufacturing Industries" *Nigerian Journal of Economic and Social Studies*, November, 1976, p. 25.

⁶⁴David Lin, "Sweated Labour and Wages in Malaysian Manufacturing", *Economic Development for Cultural Change*, Vol. 28, No. 1, October 1978, pp. 75-81.

⁶⁵Zvi Susman, "The Determination of Wages for Unskilled Labour in the Advanced Sector of the Dual Economy of Mandatory Palestine", *Economic Development for Cultural Change*, Vol. 22, No. 1, October 1973.

sectors of the Mexican economy in providing employment and wages to identify factors which could account for that performance⁶⁶.

Pang Eng Fong's study examined wage aspirations in the Singapore urban labour market⁶⁷. Pastors examined the training position and experience in the wage rates of specialised personnel in Sao Paulo's manufacturing firms⁶⁸. The quantitative magnitude and empirical determinants of urban rural remittances in Kenya had been investigated by Johnson and White Law⁶⁹.

ENTREPRENEURSHIP

The survey by Chee Peng Lin⁷⁰ presented a socio-economic profile of small-scale entrepreneurs in ethnically heterogeneous Malaysia, Nafziger⁷¹ noted that about three-quarters of his sample of 28 firms had used personal and/or family savings to get the business launched. The World Bank study of African entrepreneurship observed that there was a strong aversion to expanding a firm beyond one man operations. Reluctance to delegate authority was the main reason. In Kenya, this was found to give rise to multiple companies being run by one man; all but ten of a sample of 44 businessmen there operated more than one firm⁷² Kennedy⁷³ made an attempt to delineate those factors which compel people into petty bourgeois independence. He took those to be the preference for self-employment in West Africa; and the constant turnover of the contract industrial labour-force which gave rise to a pool of unemployed labour, made redundant by technological progress.

⁶⁶John Isbister, "Urban Employment and Wages in a Developing Economy: The Case of Mexico", *Economic Development for Cultural Change*, Vol. 20, No. 1, October 1971, pp. 24-40.

⁶⁷Pang Eng. Fong, "Wage Aspirations, Urban Unemployment and Labour Market Structure", in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 131-40.

⁶⁸Pastore Jse, "Training Position and Experience in the Wage Rates of Specialised Personnel in Sao Paulo's Manufacturing Firms", in Subbaiah Kannappan (ed.), *Studies on Urban Labour Market Behaviour in Developing Areas*, op. cit., pp. 157-59.

⁶⁹G.E. Johnson and W.E. White Law, "Urban Rural Income Transfers in Kenya: An Estimated Remittances Function", *Economic Development for Cultural Change*, Vol. 22, No. 3, April 1974, pp. 473-79.

⁷⁰Chee Peng Lin, "Small Industry in Malaysia: A Socio-Economic Profile of Entrepreneurs", *Social Action*, January-February, 1977, Vol. 27, No. 1, pp. 1-19.

⁷¹E.W. Nafziger, "The Effect of the Nigerian Extended Family on Entrepreneurial Activity", *Economic Development for Cultural Change*, Vol. 18, No. 1, October 1969, pp. 25-33.

⁷²IBRD, "The Development of African Private Enterprise", *World Bank Report*, The Author, Washington DC, 1971, pp. 15, 122-6

⁷³P. Kennedy, "Cultural Factors Affecting Entrepreneurship and Development in the Informal Economy in Ghana", *Institute of Development Studies Bulletin*, Vol. 8, No. 2, September 1976, pp. 17-21.

This preference of self-employment was also documented by Lloyd⁷⁴. Another study on Lusaka businessmen revealed that the business climate might be crucial in determining an individual entrepreneur's success⁷⁵.

POLICY IMPLICATIONS

Aspects of measurement and policy implications of informal sector were considered by Sethuraman⁷⁶. He also suggested policy implications in developing countries⁷⁷. The policies for expanding employment in the urban informal sector of developing economies were evaluated by John Weeks.⁷⁸

STUDIES IN INDIA

There are not many studies in India which are addressed mainly to one or the other aspects of informal sector. The few studies that the researcher came across during the literature survey are briefly discussed here.

CASE STUDIES

The economic survey of small industries was the first survey of its kind in West Bengal. The survey covered the non-registered sector which was identified as the informal sector.⁷⁹ The Bureau of Applied Economics and Statistics, Government of West Bengal first covered all the industrial units employing one to four persons, and later, the remaining units in the unorganised informal sector, viz., the units employing five to nine persons if using power or five to nineteen persons if not using power⁸⁰. A study on the informal sector in the Calcutta Metropolitan economy dealt with the pattern of functioning of

⁷⁴P.C. Lloyd, "Power and Independence", Routledge and Kegan Paul, London, 1971.

⁷⁵A. A. Beveridge and A. Oberschall "African Businessmen in Lusaka: Some Initial Findings", Paper presented at East African Universities Social Science Conference, Dar-Es-Salam, December, 1970.

⁷⁶S.V. Sethuraman, "The Informal Sector: Concept, Measurement and Policy", *International Labour Review*, op. cit., pp. 69-81.

⁷⁷S. V. Sethuraman, "The Urban Informal Sector in Developing Countries", *Social Action*, op. cit., pp. 195-205.

⁷⁸John Weeks, "Policies for Expanding Employment in the Informal Urban Sector of Developing Economies", *International Labour Review*, op. cit., pp. 1-13.

⁷⁹Government of West Bengal, "The Economic Survey of Small Industries", *The Author*, Calcutta, 1952-54.

⁸⁰Government of West Bengal, Bureau of Applied Economics and Statistics, "Survey of Informal Sector Industry: Urban West Bengal", *The Author*, Calcutta, 1970-71.

the industrial units in the Calcutta slum areas⁸¹. Papola studied the economics of informal sector, socio-economic characteristics, migration, employment, earnings, etc., of informal sector employees⁸². The role of informal sector and the migration factor in urban Delhi were examined by Atreyi⁸³. Two other surveys explored the economics, employment, wages, welfare facilities, working conditions, and socio-demographic characteristics of women construction workers in Delhi and Bihar⁸⁴. Heather Joshi and Vijay Joshi studied the problems of surplus labour and employment situation in Bombay city⁸⁵. Income, consumption, employment, wage levels, indebtedness and working conditions of women workers in the unorganised sector of coir industry in Kerala were studied by Mathew⁸⁶. Subrahmanyam, *et. al.*, studied the socio-economic conditions of the informal sector employees in Eluru⁸⁷ and Kavali⁸⁸. Productivity, earnings and employment potential of informal sector with reference to Nangal was studied by Dhesi and Wadhwa⁸⁹.

Venkata Ratnam and Satya Raju analysed the characteristics of the employees in informal sector and outlined the role of employees, employers and the government to improve the lot of these urban poor⁹⁰. In recent years, there have been several case studies on socio-economic conditions of workers in specific economic activities. Of these,

⁸¹A.N. Bose, "Informal Sector in the Calcutta Metropolitan Economy", World Employment Programme Research Working Paper, ILO, Geneva, 1974.

⁸²T.S. Papola, "Informal Sector in an Urban Economy", Giri Institute of Development Studies, Lucknow, 1977, (Mimeo).

⁸³Atreyi Majumdar, "Employment in Urban Delhi", *Economic Times*, Calcutta, April 30, 1981.

⁸⁴G.P. Sinha, and S.N. Ranade, "Women Construction Workers: Reports of Two Surveys", Allied Publishers Private Limited, New Delhi, 1975.

⁸⁵Heather Joshi and Vijay Joshi, "Surplus Labour and the City: A Study of Bombay", *op. cit.*

⁸⁶Mally Mathew, "Survey on Women Workers in the Unorganised Sector of Coir Industry in Kerala", Indian Institute for Regional Development Studies, Kottayam, 1980.

⁸⁷G. Subrahmanyam, *et. al.*, "Human Factor in Informal Sector: A Case Study of Eluru", Andhra University, Waltair, 1982, (Mimeo).

⁸⁸G. Subrahmanyam, *et. al.*, "Socio-Economic Conditions of the Workers in Informal Sector—A Case Study of Kavali", Andhra University, Waltair, and Sri Venkateswara University Postgraduate Extension Centre, Kavali, 1982, (Mimeo).

⁸⁹Autar S. Dhesi and Urvashi Wadhwa, "Productivity, Earnings and Employment potential of informal sector—A case Study of Nagal (Punjab)", *Indian Journal of Industrial Relations*, Vol. 20, No. 1, July 84, pp. 1-16.

⁹⁰C.S. Venkata Ratnam, and R. Satya Raju, "Labour in Urban Informal Sector—Some Reflections", Paper presented at the National Seminar on Social Security for Unorganised Labour, New Delhi, 14-16 March, 1983.

mention may be made of the study of the Leather Workers in Agra⁹¹ by Monga, Contract Labour in Jamshedpur by Acharji⁹², Building Construction Workers in Delhi⁹³ by Meenakshi Nayar and M.P. Srivastava, and Brick-Kiln Workers⁹⁴ in Delhi, Ghaziabad and Faridabad by Navin Chandra. Satya Raju made an attempt to study the socio-economic profile and background of employees and entrepreneurs and the size and structure of enterprises in urban informal sector.⁹⁵ All these stressed the need for introducing social security measures to the unorganised labour.

REPORTS

As per the recommendations of the National Commission on Labour, a series of studies was launched by the Labour Bureau of the Government of India on unorganised sector. The first report of the Bureau considered the working and living conditions of workers in the building construction industry in Delhi. A series of studies aimed at collection of data on employment, wages, working and living conditions, etc., of manual employees at different places of the country are proposed by the Labour Bureau. They include the one on Jari industry at Surat; Matches and Fire Works industry in and around Sivakasi; Metal-ware industry in Moradabad, Agarbatti industry in Karnataka and Graphite Crucible industry in Andhra Pradesh. The growth of employment, manpower requirements, training and educational facilities, etc. were studied by a team of experts with reference to Visakhapatnam⁹⁶.

The data provided by the various studies indicate that in most of the developing countries the informal sector accounts for a major share of employment. In India taking the economy as a whole, the informal

⁹¹M. L. Monga, "Leather Workers in Agra—A Case Study to Explore Possibilities of Extending Social Security", Paper presented at the National Seminar on Social Security for Unorganised Labour, *op. cit.*

⁹²N. Acharji, "A Case Study of Contract Labour in Jamshedpur", Paper presented at the National Seminar on Social Security for Unorganised Labour, *op. cit.*

⁹³Meenakshi Nayar and M.P. Srivastava "A Case Study of Building Construction Workers in Delhi", Paper presented at the National Seminar on Social Security for Unorganised Labour, *op. cit.*

⁹⁴Navin Chandra, "Working Conditions of Brick-Kiln Workers", Paper presented at the National Seminar on Social Security for Unorganised Labour", *op. cit.*

⁹⁵R. Satya Raju, "Informal Sector in Urban Labour Markets: A Case Study of Shops and Establishments in Visakhapatnam, Unpublished Doctoral Thesis, Andhra University, 1983.

⁹⁶Government of India, National Employment Service, Ministry of Labour, Directorate General of Employment and Training, "Area Skill Survey Visakhapatnam", *The Author*, New Delhi, 1976.

sector accounted for 99 per cent of the workforce in agriculture, 78 per cent in manufacture, 34 per cent in mining, 58 per cent in construction, 70 per cent in trade, 46 per cent in transport and 67 per cent in services⁹⁷.

LABOUR MARKET SIZE, WAGES AND MIGRATION

Ranjit Das Gupta explored the formation and development of labour structure in colonial India⁹⁸. Leela Gulati narrated the story of middle-aged, untouchable, unorganised women brick-workers.⁹⁹ According to the estimates of some social scientists, the informal sector forms 45 per cent in Calcutta¹⁰⁰, Bombay¹⁰¹, Ahmedabad¹⁰², and 54 per cent in Urban Delhi¹⁰³. Papola analysed the structural aspects of labour market in Ahmedabad¹⁰⁴, with particular reference to its dual characteristics.

URBAN SLUMS AND POVERTY

Paul D. Wiebe¹⁰⁵ presented a picture of social life as it would occur in Madras slums from the perspectives of the people themselves. Another study on the urban poor referred to those living in the spontaneous settlements in Delhi¹⁰⁶. The processes through which women and the family cope up with the conditions of poverty in their every day life were perceptively presented by Andrea Menefee Singh¹⁰⁷.

Sivaramakrishnan outlined the origin, and progress of the urban

⁹⁷Government of India, Planning Commission, Draft Five Year Plan 1978-83, *The Author*, New Delhi, p. 83.

⁹⁸Ranjit Das Gupta, "Structure of the Labour Market in Colonial India", *Economic and Political Weekly*, Special Number, November 1981, pp. 1781-1806.

⁹⁹Leela Gulati, "Female Labour in the Unorganised Sector: Profile of a Brick Worker", *Economic and Political Weekly*, April 21, 1979, pp. 744-752.

¹⁰⁰A.N. Bose, "The Informal Sector in the Calcutta Metropolitan Economy", *op. cit.*

¹⁰¹Healther Joshi and Vijay Joshi, "Surplus Labour and the City: A Study of Bombay", *op. cit.*

¹⁰²T.S. Papola, "Informal Sector in an Urban Economy: A Study in Ahmedabad", *op. cit.*

¹⁰³Atrayi Majumdar, "Employment in Urban Delhi", *op. cit.*

¹⁰⁴T.S. Palola "Mobility and Wage structure in an Urban Labour Market—A Study in Ahmedabad", in Subbaiah Kannappan (ed.), *Studies on Urban Market Behaviour in Developing Areas*, *op. cit.*, pp. 141-55.

¹⁰⁵Paul D. Wiebe, "Social Life in an Indian Slum", Vikas Publishing House, New Delhi, 1975

¹⁰⁶Tapas K. Majumdar, "The Urban Poor and Social Change: A Study of Squatter Settlement in Delhi", *Social Action*, *op. cit.*, pp. 216-240.

¹⁰⁷Andrea Menefee Singh, "Women and the Family, Coping Poverty in the Bastis of Delhi", *Social Action*, *op. cit.*, pp. 244-65.

development programmes for the Calcutta Metropolitan District with special reference to the bustees or slums which accounted for a significant proportion of the city's population¹⁰⁸. Another study examined housing for the urban poor in Ahmedabad city¹⁰⁹.

Dhesi and Dhariwal studied about health, education and productivity of industrial workers with a sample of 150 workers from both the organised and the unorganised sectors in Amritsar city. The information about normal daily diet, housing facilities, clothing, personal care and education were collected personally from the workers¹¹⁰.

ENTREPRENEURSHIP

Van Den Begaert¹¹¹ studied informal sector in Ranchi city, with particular reference to the range of opportunities available to the tribal population of Ranchi to participate in its economic life as entrepreneurs or self-employed persons. Sarveswara Rao, *et. al.*, explored the industrial and commercial entrepreneurship in Visakhapatnam-Anakapalli and Vijayawada-Guntur regions of Andhra Pradesh. The entrepreneurs in establishments employing less than ten employees were included in the study¹¹².

PROBLEMS AND LEGISLATION

Bose studied the problems and prospects of urban informal sector and suggested some policy measures¹¹³. The public policy issues and measures were considered by Viswakarama also¹¹⁴. The recent trends in labour legislation on the Employees' Provident Fund and Miscellaneous Provisions Act which had been extended in 1981 to the establishments engaged in stevedoring, loading and unloading of ships,

¹⁰⁸K.G. Sivaramkrishan, "The Slum Improvement Programme in Calcutta: The Role of the CMDA", *Social Action*, *op. cit.*, pp. 292-305.

¹⁰⁹Kirtee Shah, "Housing for the Urban Poor in Ahmedabad: An Integrated Urban Development Approach", *Social Action*, *op. cit.*, pp. 335-52.

¹¹⁰S. Dhesi and M.S. Dhariwal, "Health Education and Productivity of Industrial Workers-Amritsar", *National Council of Applied Economic Research*, Vol. 13, No. 2, January 1981, pp. 53-57.

¹¹¹Van Den Begaert, "Entrepreneurial Patterns in the Urban Informal Sector: The Case of Tribal Entrepreneurs in Ranchi", in Alfred de Souza (ed.), *The Indian City—Poverty, Ecology and Urban Development*.

¹¹²B. Sarveswara Rao, *et. al.*, "Report on Commercial and Industrial Entrepreneurship in the Coastal Region of Andhra Pradesh", Vol. 1, *General Report*, Andhra University, Waltair, 1975.

¹¹³A.N. Bose, "Informal Sector: Problems and Prospects", *Nagartok*, Vol. XII, No. 2, April-June 1980, New Delhi.

¹¹⁴R.K. Viswakarama, "Urban Informal Sector: Concept Public Policy Issues and Measures", *Nagartok*, Vol. 14, No. 2, April-June 1980.

poultry farms and in cattle feed industry were discussed by Sangal¹¹⁵. The problems of unorganised sector employees under the inflationary conditions were documented by Nambiar¹¹⁶.

CONCLUSION

The foregoing review of literature on informal sector in urban labour markets points out the growing interest in the subject in the Third World countries. Mostly, micro-level case studies of major cities in different countries have been taken for field investigation. The main focus of such studies was either on structural aspects of labour market and formal-informal sector relationships or socio-economic conditions of the people engaged in informal sector. Perhaps due to data limitations, productivity in informal sector often did not receive much attention. Economies of scale, technology and contribution of informal sector to the urban economy or national economy have also not been adequately dealt with in many studies.

In the course of literature survey and during the period of field study, the author has felt that there is a scope for further research on some aspects of urban informal sector. But, much of it is limited due to data limitations.

There is a need to assess the contribution of informal sector to the urban economy. There is also scope to identify more profitable activities within the informal sector and examines the economic viability of the different projects under the Self and Special Employment Schemes.

There is also an imperative need to assess the impact of government measures, such as, Self and Special Employment Schemes, Differential Interest Rate Scheme and 20-Point Economic Programme on communities belonging to scheduled castes, scheduled tribes, backward classes and other economically weaker sections. There is a further scope to study the cost of employment generation, and capital-labour-output ratios in the informal sector.

Domestic servants, employment of women, casual labour, hawkers and pedlars in the urban labour markets are some other areas, which deserve attention for further research.

Rural-urban migration, absorption/graduation of labour force from informal to formal sector and *vice versa* and changes in incomes/earnings are some other aspects that merit further study and investigation. □

¹¹⁵S.K. Sangal, "Recent Trends in Labour Legislation", *Yojana*, 1-15 May, 1982, pp. 18-20.

¹¹⁶K.K.G. Nambiar, "Inflation and Workers in Unorganised Sector", *Financial Express*, January 6, 1981.

*Workers in Urban Informal Sector**

P. THIPPAIAH

THE HIGH rate of migration from rural to urban areas, the adoption of technological changes and capital intensive techniques industries have contributed to the emergence of labour surplus in the urban economy. The low skill of migrant workers and low absorption capacity of modern organised sector have forced the migrant workers to engage themselves in various low income generating activities or jobs, which is termed as urban informal sector in the literature on development and employment policy. Though this sector is playing a significant role in generating income and employment and supplying goods and services to the urban people at low prices, it was not recognised for state help in many developing countries. As a consequence, the workers who are engaged in this sector are suffering from poverty, unemployment, underemployment and insecure jobs. Several factors have contributed for this situation. In this paper an attempt is made to identify such factors and to suggest some measures for the improvement. Before touching this part some of the related aspects of informal sector and its workers are also covered in this paper. The analysis of the paper is heavily based on personal insights obtained as a result of interviews with owners and workers of informal sector units while conducting a survey for a project on "The Economy of the Urban Informal Sector: A Study of Bangalore Metropolitan Area".

TYPES OF INFORMAL SECTOR WORKERS

There are two categories of workers in the informal sector, namely the self-employed and the wage-employed. Among the wage employed, there are several categories of workers. Firstly, there are workers whose source of income is wage labour; they are mostly unskilled and casual workers of small or large industrial or commercial enterprises. Secondly, there are workers who, besides engaging themselves in wage labour,

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seek to work in other sectors with a view to supplementing their income. Thirdly, there is a class of workers who do not depend upon wage labour alone but are also obliged to seek work for their family members to supplement their income. The bulk of the labour force is in the urban informal sector, with a preponderance of self-employment, who earn their livelihood independently or with the aid of family labour. The self-employed are engaged in a number of activities comprising hawking rickshaw pulling, shoe-shining, rag picking, recycling of wastes, street vendors and so on. Majority of these workers roam in the streets to sell their goods and services. Whereas the wage employed are engaged in domestic work, hotels, rice mills, workshops and tertiary sectors. The self-employed activities are mostly carried out in houses, on footpaths or in temporary structures. Many of these enterprise have no access to water, electricity and other basic amenities.

CHARACTERISTICS OF INFORMAL SECTOR WORK FORCE

A majority of the informal sector workers are migrants to city. They are persons who migrated to the city at different points of time on account of droughts, famines, displacement of supplementary occupation, high burden of indebtedness leading finally to transfer of property to creditors. They comprise of agricultural labourers, small farmers and artisans. Education and skill levels of these persons are very low. Their age composition is largely in the age group of 15 to 30 years. A large number of such labourers are living in temporary and semi-permanent dwellings which are devoid of basic amenities. The studies sponsored by the International Labour Organisation also bring out these characteristics and indicate that the informal sector activities exhibit more or less same features throughout the world.

Another important characteristic of informal sector labour market is the predominance of women and child labour. The children are largely found in garbage waste collection, hotel works, etc.; whereas women workers are employed as construction workers, part-time or full-time domestic workers, as casual workers in rice mills and child attendants in rich and middle class families. The PREALC surveys also point out that the female labour force is more in informal sector than in formal sector. At first sight this might seem to be inclusion of domestic works among informal sector activities, but in fact the finding remains true even if this occupation is excluded (P.R. Souza and V.E. Tokman, 1976, p. 359).

URBAN INFORMAL SECTOR WORKFORCE—SOME ESTIMATES

The share of working population in urban informal sector is high. Most of the city studies in India (Table 1) reveals that the share of

TABLE 1 SHARE OF THE URBAN INFORMAL SECTOR WORK FORCE—SOME ESTIMATES

Sl. No	Author/Researcher	Study Area and reference year	Estimated Size as percentage of Total Work Force	Criteria Used	Data Base
1.	H. Joshi and V. Joshi (1976)	Greater Bombay 1961	47.7 } ^a 49.5 }	Workers in unorganised sector is a residual left after subtracting workers in all public and private establishments employing more than 25 people from the total workforce.	Directorate of Employment Bombay Quarterly returns, 1961, 1966 and 1971 with corrections for 1961.
2.	T. S. Papola (1981)	1971 Ahmedabad City	46.5 ^b	Workers in all productive units employing less than 10 workers and all unattached workers.	Census of India, 1971, Part IIIA, establishments, Tables, Gujarat.
3.	A. N. Bose (1978)	1971 Calcutta City	28.3 ^a	For manufacturing all non-registered units including non-household and household units with less than 20 persons and excluding registered establishment and sample sector units. For non-manufacturing, all units employing four or less workers including independent workers.	Census of India, 1971, Part III-A, Establishment tables, West Bengal.
4.	L. K. Deshpande (1979)	Greater Bombay 1961	A 51.3 } ^c 50.4 } B 42.0 } ^a 39.5 }	Same as Sl. No. 1 for both A and B.	A. Same as Sl. No. 1 without corrections, B. Same as Sl. No. 1 with corrections for both 1961 and 1971.
5.	A. Majumdar (1980)	1971 Delhi 1961	61.4 } ^a 53.8 }	Same as Sl. No. 1.	Directorate of Employment, Delhi.
6.	Abdul Aziz (1984)	Bangalore City 1971	40.3 ^a	Workers in all units employment less than 10 workers, casual workers in household industry and independent workers.	Census of India, 1971. Part III-A, establishment tables, Karnataka.

SOURCES: ^aH. Joshi, and V. Joshi (1976), Table III: 1, p. 48. ^bT. S. Papola, (1981), Table II: 1, p. 27. ^cA. N. Bose, (1978), Table 7, p. 19. ^dL. K. Deshpande (1979), Table II: 15, p. 66. ^eA. Majumdar, (1980), Table 3, p. 25. ^fAbdul Aziz (1984), Table 3-3, p. 52.

urban informal sector is between 28 per cent to 54 per cent. The figure 28 per cent in Calcutta city is somewhat lower than that of the estimated figures of informal sector workforce in other third world cities between 45 to 70 per cent (K. Sreeramamurthy, 1983). The difference in the concept of informal sector operations used may be a factor that could account for such variations in the size of informal sector labour-force. Again, the share of informal sector workforce is more in some economic activities than in the formal sector. A study in Bangalore city indicates (Table 2) (Abdul Aziz, 1984, p. 53), that a large number of informal sector workers were found in household industry, personal services and other than hotels and restaurants. This is because, these

TABLE 2 EMPLOYMENT STRUCTURE IN FORMAL AND INFORMAL SEGMENTS, BANGALORE CITY, 1971

<i>Census Code</i>	<i>Description of Economic activities</i>	<i>Total workers</i>	<i>Formal sector workers</i>	<i>Informal sector workers</i>	<i>Percentage of 5 to 3</i>
1	2	3	4	5	6
1.	Agriculture, Hunting, Forestry and fishing	474	384	90	18.98
2 & 3.	Manufacturing and Repair				
(a)	Household Industry establishments	3798	255	3543	93.28
(b)	Other than household industry establishments	91760	63543	28247	30.78
4.	Electricity, Gas and Water Supply	1982	1951	31	1.56
5.	Construction	672	491	181	26.93
6.	Wholesale and Retail Trade				
(a)	Hotels and Restaurants	14685	8934	5751	39.16
(b)	Other than hotels and restaurants	43887	5968	37919	86.40
7.	Transport, Storage and communications	7598	5821	1777	23.39
8.	Finance Insurance, Real-Estate and Business service	11930	8040	3890	32.61
9.	Community, Social and personal services				
(a)	Public Administration, Education, Health recreation, etc.	48679	42004	6675	13.71
(b)	Personal Service	4821	287	4534	94.05
(c)	Services not-elsewhere classified	2047	—	1093	53.40
TOTAL		232333	138632	93731	40.34

SOURCE: Abdul Aziz, *Urban Poor and Urban Informal Sector*, Ashish, New Delhi, 1984, p. 53.

activities mostly fall in the informal sector and they do not call for any special skill. From Table 2, it is also evident that the 138632 work-force constituting 40.34 per cent were found in informal sector. This is an account of less absorption capacity of the formal sector. Even if the absorption capacity of this sector is miraculously doubled by phenomenal growth of large scale sector and public services, it would still employ not more than 20 per cent of the annual increase in the labour force (Government of India, 1978, p. 83).

EARNINGS

The earnings of the informal sector workers are significantly lower than those of the formal sector workers. Indeed in Asuncion and Sansalvador it does not even reach 40 per cent of that level, (P.R. Souza and V.E. Tokman, 1976, p. 361). By using 1970 National Sample Survey, OTEMO, Ministry of Labour, Richard Webb also calculated the earnings of formal and informal sector workers in Peru. According to him the average monthly income of informal sector workers and formal sector workers was 50 and 114 US dollars respectively (Deepak Majumdar, 1975, p. 22). Even among the informal sector workers there are differences in income earned by them. This is clear from Table 3 (Abdul Aziz, 1984, p. 94).

TABLE 3 AVERAGE ANNUAL INCOME BY WASTE RECYCLING INDUSTRIAL WORKERS IN BANGALORE CITY

<i>Sectors</i>	<i>Income (Rs.)</i>
Waste Collectors	2632
Bulk Buyers	5748
Petty manufacturers of household requirements	4097
Retailers	9663

SOURCE : Abdul Aziz, *Urban Poor and Urban Informal Sector*, Ashish, New Delhi, 1984, p. 94.

Though differences in income are large, the income of certain class of workers is more. Due to this many of the migrant workers are able to remit a portion of their earnings to their dependents. Besides contributing to personal income this sector also contributes share to the total urban income. It is evident from the surveys in Asuncion and Sansalvador that the share of informal sector (P.R. Souza and V.E. Tokman, 1976, p. 357) in the total urban income is 33 and 25 per cent respectively; while an estimate for Lima indicates a share of 30 per cent. From these facts it is clear that this sector is not only helping the distribution of income between urban and rural but also contributing to the state domestic product significantly.

LINKAGES WITH FORMAL SECTOR

The formal sector in most of the cases is dependent on informal sector. The latter supplies labour to former by keeping wages near the subsistence level. Casual workers are employed in the organised sector who are largely drawn from the informal sector. Further, this sector provides a variety of mass consumption goods and producers' goods which are marketed through middlemen and even by big companies. For instance, some of the artisans in the unorganised sector supply agricultural tools, buckets, kerosene stoves and leather chappals to the organised sector, which are later sold with their trade brands. Besides, this sector creates market for certain commodities such as tools, spare-parts, etc., manufactured in the formal sector by generating income and employment. Thus the existence of formal sector will be almost impossible without the help of informal sector though the latter depends on it to some extent.

WORKING CONDITIONS AND PROBLEMS OF INFORMAL SECTOR FORCE

Though the contribution made by this group of workers is significant in many cities, they are facing some problems. A reference may be made here to some of these problems:

1. The informal sector workers are mostly paid low wages and their incomes oscillate around the subsistence level. Besides, the working conditions are also hopelessly bad. The employer always expects more work from the worker without giving him intervals and holidays. There are many instances of the apprentice workers of small units not being paid wages except provision of free shelter, food and travelling allowance. A few of the skilled labourers, no doubt, get better wages but a vast majority who are employed in this sector are paid less than what they deserve for their labour. The best example is the unorganised female beedi workers and female labourers working in rice mills of Sambalpur town who paid less than a minimum wage fixed by the government (Kishor Samal, 1983).
2. The working hours in this sector are longer than the statutory hours of work. In Yaounde the informal sector working hours are more than the statutory 40 hours. On an average an undertaking operated 53.5 hours per week. The employees and apprentices worked on an average for slightly more than 50 hours a week (Erik Demol and Nihan George, 1982, p. 78). In a case study of informal sector in the Bangalore city, it was also observed that in the case of self-employed, the working time

was from 6 A.M. to 6 P.M. except one hour spent for rest and lunch. The overworked worker naturally loses his health.

3. There is competition within and between informal and formal sector producers for marketing of their products. Within informal sector those activities which do not call for special skills and require little capital tend to produce identical goods and services and compete for a limited market. This keeps the earnings low. But the goods produced with special skills do find a high level of demand due to lack of competition (S.V. Sethuraman 1977, p. 345). This does not mean that the skilled labour is better-off; in many cases it also suffered losses either due to dumping or surrender-freedom of sale following refusal of the producers of formal sector who had placed order earlier. It is also observed that in waste collection business the bulk buyers underweigh the waste and even deduct a few kilograms on the ground that the waste material contains useless things. This practice has imposed losses on the waste collection. Even between the formal and informal sectors competition is coming up in recent years. For instance, the synthetic chappals of formal sector are competing with leather chappals manufactured in the informal sector. This has actually reduced earnings of informal sector workers.
4. The educational standards and the skill levels among the workers in the informal sector are far from satisfactory. The employer or the government have not taken any steps to provide these facilities. Absence of these in many times have limited the job prospects of the informal workers.
5. No medical facilities and safety measures are provided by the employers to the workers of the unorganised sector. As a result, many of these workers are suffering from ill-health and physical disabilities.
6. No social security benefits are available to the workers in the informal sector. Absence of these have created many problems to their dependents.
7. There is also regular harassment by the employer and by police. In a case study of Bangalore city, it was evident that out of 206 sample, 42 reported harassment by police and corporation officials. According to this study the worst hit sections were waste collectors and petty traders (Abdul Aziz, 1984, p. 116).
8. Non-availability of credit and ration cards for fresh migrant workers have forced them to resort to informal credit and open market respectively for which they offer higher prices and they become indebted to many people.

SOME SUGGESTIONS

With a view to improving the economic conditions of the informal sector workers the following suggestions may be considered:

1. Extension of the minimum wage legislation to this sector so that the wage rates may be regulated in accordance with the social objectives.
2. Extension of social security schemes and medical facilities to the workers which will go a long way in helping the families of the workers in times of need.
3. Guidelines should be issued to commercial banks to provide concessional finance to this sector and procedures of availing it should be made easier.
4. Housing facilities should be provided for the rag pickers, retail traders, artisans and workers by corporations or municipal authorities.
5. Steps should be taken by the government to restrict the formal sector which is competing with the informal sector by way of stopping incentives and concessions.
6. Urban informal sector cooperatives should be opened in cities to provide finance, raw-materials and purchase of finished products, to avoid price fluctuations.
7. Each of the informal sector workers should be given an identification card or licence so that he is not harassed by the public and the police. ☐

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12. K. Sreeramamurthy, 'Urban Labour in Informal Sector: A Case Study of Visakhapatnam City', (Unpublished). Doctoral Thesis, Andhra University, Waltair, 1983, Appendix Table 3.1.

The Elusive House for the Poorest Amongst the Poor

Need for a Systems Approach

S.K. SHARMA
and
MULKH RAJ

EACH COUNTRY has a given level of housing stock. The composition of this varies in terms of construction form, quality, design efficiency, materials used, utility levels and age. Depending upon the resources available, fresh housing supply is added every year. At the same time some portion of existing housing stock decays through obsolescence or natural calamities. The net cumulative housing stock available thus depends on the rate of new housing supply per year and annual obsolescence rate. If the net accretion to net cumulative housing stock is not adequate to meet the household formation demand the housing conditions will tend to deteriorate. As a result the housing situation remains dynamic in all respects. D.P. Wyatt¹ likens net housing stock as a "multideck stack system" as represented in the diagram on page 40.

Each deck in the diagram represents an equal period of time. Net increase in housing stock (JNG) enters the cumulative net housing stock (CNS) stack at 'I' with the housing standards of that period in a number of given construction forms. In turn, over time the net increase in housing stock moves down the stack at differing rates, determined by its decay curve. The movement continues from the youthful stack section through to the middle aged section, on to the senescent decay decks, where the population arriving at the last deck is largely fit for slum clearance (JCI) at 0.

As a dwelling passes down the stack it will arrive at decks where decisions must be made: whether to reduce maintenance arrears or rehabilitate or adopt some other improvement strategy. If a negative

¹D.P. Wyatt, *The Implications of Conceptual Modelling of Great Britain's Housing Stock For Resource and Housing Stock Management.*

LEGEND

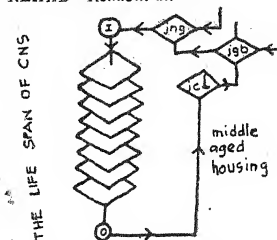
CNS=Cumulative Net Housing

jng=Net increase in housing stock

jgb=New house building

jci=Slum clearance

REHAB=Rehabilitation



THE HOUSING STACK

Fig. 1.

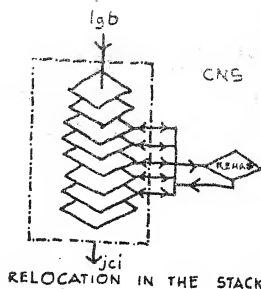


Fig. 2

response is made then the dwelling will continue sliding down and achieve complete obsolescence. If a positive decision is taken then the dwelling will be returned back up the stack, the re-entry point being dependent on what upgrading strategy was adopted, and the gain years realised. In practice, the years gained result in the dwelling moving back up the appropriate decay curve of its construction form to them recommence movement down the stack.

To sum up, the quality and quantity of cumulative net housing stock will tend to decline if:

- the annual supply of new housing is lower than the annual obsolescence rate.
- the rate of investment in rehabilitation or upgradation of existing housing stock is lower than the annual rate of investment required to upgrade the houses and to prevent their total obsolescence.
- the annual rate of housing supply is lower than the rate of annual additional demand by the newly formed households. More and more families will squat on public or private land or become houseless or families will double or triple up thus causing congestion and deterioration in the living conditions.
- the rate of investment in urban and rural infrastructure (i.e., water supply, sanitary, sewerage, drainage, electricity, roads,

road transport, recreation, etc.) is lower than the rate of investment required to meet per capita demand, the living conditions of the people at large will tend to deteriorate.

The major brunt of this situation will be borne by the poor and the differences in quality of human settlement environment for the poor and the relatively better off will increase. As long as considerable difference in income between the rich and the poor remains, the difference in standard and quality of dwellings, marked differences in service and qualities of the collective amenities will continue to prevail. The rich will tend to live in the best dwellings located in the most preferred districts, while the poor are forced to dwell in low quality dwellings and that too in the deteriorated districts.² In this situation unless housing conditions in general are upgraded and benefit reaches to all sections of populations, differentials in living conditions will remain conspicuous. Some attempts may be made to clean central areas of all poor settlements but these solutions tend to remain transient. This is so as, to obtain greater equality, one cannot do away with poor people, or poor quality settlements the way you can remove low quality dwellings by just tearing them down. Realising the futility of this approach, the policy of razing whole districts have been largely abandoned in many countries today. We are then left with three logical alternatives:

- to 'upgrade people' by introducing different kinds of income subsidies;
- to 'upgrade districts' by reinforcing infrastructure, services and collective amenities; or
- to 'upgrade the dwellings'.³

At each stage of economic development, the society faces these alternatives and has to review and evaluate the *inter se* allocation of resources between various alternatives as stated above. For example, in some countries immediately after the World War II, governments adopted the 'housing policy which simply aimed for building new and relatively cheap housing on available land within the city'. However, during the 1950's it became clear that it is not possible to deliver housing supply at the requisite rate. Land within the city got utilised and new housing activity had to be undertaken in the neighbourhood districts with all the attendant consequences. As a follow up, these countries in the 1960's, established specialised agencies

²Dagfinn, as in "Social Factors in Rehabilitation", Norwegian Building Research Institute, Norway.

³Dagfinn, *op. cit.*

to concentrate on 'urban renewal' to improve the housing conditions of people at locations at which they were staying. When economic setbacks were experienced around 1970, the concept of tearing down the buildings was almost abandoned and the society rediscovered the advantages of improving the old housing stock. It was:

- (a) accepted that human settlement rehabilitation is available and effective housing policy,
- (b) realised that it is not sufficient to build light, airy, modern and large dwellings. The old structures had values that got lost; they had qualities that one could not recreate in the modern buildings. The old houses were built according to human scale and could satisfy human needs of variety, self expression, activity and togetherness.⁴

These historical trends and lessons are an eye opener for us.

DIMENSIONS OF HUMAN SETTLEMENT CONDITIONS IN INDIA

The latest estimates of the National Buildings Organisation (NBO) show that in our country there is a housing shortage backlog of 24.7 millions units, *i.e.*, 5.9 million units in urban areas and 18.8 million units in rural areas. By 2001, the NBO projects that the housing shortage backlog will increase to 29.8 million units. The details are as follows:

Apart from this quantitative shortage, qualitatively the existing housing conditions needs overriding attention of the policy planners. For example, in the rural areas only 18.5 per cent of the houses are pucca; another 32.4 per cent are semi-pucca and as much as 49.1 per cent are kutcha. In the urban context, 15.8 per cent of the houses are kutcha, 19.6 per cent semi-pucca and 64.6 per cent are pucca.⁵ Further, at least half of the families live in one room houses in both urban and rural areas.⁶ The average living space per person available is only 40.4 square meters in rural areas. In the urban context one third of urban families with monthly per capita expenditure of Rs. 43 have a housing space per person not more than 5.1 square meters. In the rural areas the corresponding housing space available per person is less than 8 sq. meters. Another interesting aspect is the

⁴The 9th CIB Congress Stockholm CIB 83, p. 136, The National Swedish Institute for Building Research, Garle, Sweden.

⁵National Sample Survey (28th round) quoted in "Conservation of Existing Housing Stock by G.C. Mathur, National Buildings Organisation, New Delhi.

⁶*Census of India*, quoted by G.C. Mathur, *ibid*.

Particulars	1985			1990			1995			2001		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1. Number of Households	103.3	32.2	135.5	115.7	36.0	151.7	130.9	40.7	171.6	142.8	44.5	187.3
2. Housing Stock												
(a) Pucca	17.9	19.3	37.2	19.8	21.4	41.2	21.7	26.4	48.1	23.9	25.9	49.8
(b) Semi-Pucca	35.5	7.0	42.5	39.2	7.7	46.9	43.0	9.5	52.5	47.4	9.3	56.7
(c) Serviceable Kutchha	31.1	0.5	31.6	34.4	0.5	34.9	37.6	0.6	38.2	41.7	0.7	42.4
(d) Unserviceable Kutchha	10.7	2.9	13.6	11.9	3.2	15.1	13.0	3.4	16.4	14.3	3.8	18.1
Total housing stock (a+b+c+d)	95.2	29.7	124.9	105.3	32.8	139.1	115.3	35.9	151.2	127.3	39.7	167.0
3. Useable housing stock*	84.5	26.3	110.8	93.4	29.1	122.5	102.3	31.9	134.2	113.0	35.2	148.2
4. Housing shortage (1-3)	18.8	5.9	24.7	22.3	6.9	29.2	28.6	8.8	37.4	29.8	9.3	39.1

* In rural areas useable housing stock comprises of pucca, semi-pucca and serviceable Kutchha and in urban areas, it comprises of pucca and semi-pucca.

† Estimates/Projections based on the assumption that every household whether in the Urban areas or rural areas should have a housing unit to itself.

‡ These estimated/Projections have been arrived on the basis of 1971 Census data and partially available 1981 Census data. These may undergo a change/revision, once the break-up of the housing stock data by materials of wall and roof is available separately from 1981-Census data. In the present case 1971 percentage break-up of housing stock has been used for arriving at estimates/projections.

variation of area per household in relation to the private consumption expenditure. The details are as follows:

AVAILABILITY OF HOUSING SPACE⁷

Per capita expenditure category	Rural		Urban	
	Percentage of households in expenditure category	Space available per head (Sq. mtrs.)	Percentage of households in expenditure category	Space available per head (Sq. mtr.)
Less than Rs. 21	5.1	5.0	2.2	3.8
Rs. 21-28	10.2	5.6	4.9	4.2
Rs. 28-43	39.6	6.9	24.9	5.1
Rs. 43-75	34.4	9.1	33.2	6.7
Rs. 75-100	6.1	11.5	12.8	8.3
Rs. 100-150	3.3	15.2	13.5	11.6
Rs. 150 and above	1.00	25.2	8.3	17.0
Total (including not reported)	100.00	7.8	1.00	6.9

The ageing of our existing housing stock is equally disconcerting. As per the National Sample Survey (19th round) about half of the families live in houses which are 20 years old or more. Middle class living surveys conducted in 45 different centres in the country have revealed that in half of the centres, over 20 per cent of houses are bad. Excepting major cities in all other cities, between 77 and 92 per cent of middle class dwellings were either without durable wall or roof or floor.⁸

In regard to infrastructure inputs into human settlements, the scenario is equally disconcerting. On the basis of a national survey, conducted in 1979-80, it was assessed that 2,31,000 villages out of the 5,76,000 villages in the country did not have adequate water supply. In the field of sanitation, the coverage in urban areas in 1985 is about 33 per cent whereas the coverage in rural areas is still lower.⁹ These statistics in fact do not fully portray the hardship and inconvenience that is experienced by the poor, particularly the women and the children in areas where water is scarce, inadequate or polluted. In terms of man-days lost due to water borne or water related diseases which constitute 80 per cent of the public health problem of our country, the wastage is indeed colossal.¹⁰

⁷National Sample Survey (28th round) Government of India quoted by G.C. Mathur, *op. cit.*

⁸National Buildings Organisation, New Delhi.

⁹India, 8th Session of the UN Commission on Human Settlements Kingston, April 29-May 10, 1985.

¹⁰The Sixth Five Year Plan 1980-85, p. 397, Planning Commission, Government of India, New Delhi.

As in the case of inadequate and polluted water supply or inadequate and inefficient sewerage system, the insufficient and inefficient housing stock too adversely affects the health and efficiency of the dwelling families. As pointed out, above half of the families are living in one room houses with poor lighting, inadequate ventilation, etc. Thus, a sizeable chunk of the cumulative net housing stock is highly inconveniencing the families, especially the large poor families.

Apart from congestion, small illequipped houses and dilapidated neighbourhoods become a source of health hazard. To the elderly, children and disabled they represent an insurmountable obstacle, besides being a danger point where accidents frequently occur. Narrow spaces and illplaced doors hamper the disabled, the weak and the sick members of the families. Further, the dwellings tend to be dingy, unhygienic and neglected. Make-shift and hazardous arrangements exist in regard to cooking space and bathroom in these houses.

The room dimensions are such that the family uses the space with great discomfort. Fixtures and fittings are in despair causing danger to the safety of the family. Internal access within the house as well as external access is inefficient and hazardous.

The transforming of lodgings from the point of view of "making small spaces liveable" can create a sea change and add to the comfort of the people apart from rehabilitating the housing stock. These include:

Changing room dimensions

Possible if the room partitions are the transformable type.

Changing natural lighting

Determined by the transformability of the external walls and affects.

Partitioning into independent rooms

Possible when the partitions between main and access room permit relocation and the external wall can be modified inasmuch as the creation of new rooms do not present problems for natural lighting.

Changing the fittings

Depends on if and how much the fitted wall can be modified.

Changing Internal Access

Depends on the possibility to modify internal boundaries.

Changing External Access

Possible if the division boundary between stairs or corridor or lodging can be modified.¹¹

The above is possible and has been successfully demonstrated in

¹¹A Standard Quality Evaluation System for Architectural Design by Giuseppe Morabito, Universite de Rome, Italy.

many rehabilitation projects. For example the "Asian Neighbourhood Design" (AND) in San Francisco is a community design centre whose work includes architectural and construction services to other community agencies, employment training in construction trades for youths, and general housing and self-help programmes in the community. Chinatown in San Francisco posed an especially tough challenge to AND. In 1980 AND took up the challenge in upgrading the living spaces. It was clear that tenants in most deteriorated buildings were hesitant to press their landlords for improvements and that the only space over which they felt some control, was the interior of their rooms. House to house interviews showed that most of the day-to-day problems facing them were physical ones. Each had to live in a room in which the bed filled up 20-30 per cent of the living space. Clothes and personal belongings were stacked in cardboard boxes hung from clothes lines, kept in plastic bags or left strewn about on recycled orange crates. In this tiny room the inmate family had to wash, dress, cook, read, relax, entertain and sleep. In order to accommodate all these activities, each piece of furniture had to serve more than one purpose. A chair had also to function as a stepping stool. The bed had to include storage. The lighting had to be adjustable to suit different activities. AND changed the furniture. In one model room a closet and a storage unit was hung from the wall so that the bed could be rolled under it during the day. In one unusual room with an angled wall, AND proposed a 'V berth' and modelled the storage units after those on sail boats.¹²

Such changes made the rooms tolerable to live in though these were not 'good living space' as one would desire. Neither these changes were just 'face-lifts' or 'token reforms'. These types of changes set the trend and created total environment for better housing and housing related environment.

Similarly the planners can have a critical look at various constraints which beset many human settlements to become better places to live in. Non-existent or defective drainage, absence of sewerage systems, inadequate water supply, absence of street lighting, narrow roads make these settlements unfit for human habitation. In case of other people, the human settlements in which they live are as just tolerable. If only sufficient resources were available these places can also become better places to live in.

THE ALTERNATIVE

Taking all above into account, it may be much more beneficial to

¹²C. Mary Camerio, *Inside Chinatown*, University of California, Berkeley.

upgrade the existing conditions in the human settlements rather than investing most of the scarce resources into construction of new housing stock. This is also in line with the latest thinking in the Ministry of Works and Housing¹³ which underlines that before evolving any scheme it is worthwhile to take stock of the settlements' conditions so that schemes can be oriented to cater to the local and immediate needs. Furthermore, resources available at present and in future will call for optimisation. With this constraint in mind, a criteria will have to be evolved to settle priorities in resource allocation at both inter-settlements level and inter-project component level within settlements. A view has to be taken as to why, where, what and how improvement in shelter and neighbourhoods have to be provided. The schematic presentation of this rating matrix takes into account the settlement characteristics, level of settlements, neighbourhood and facilities the shelter need and shelter supply system.

Based on this the human settlements in the country can be classified into "no settlements, critical settlements, very bad settlements, satisfactory settlements, good settlements and excellent settlements. In this manner we can evolve an operational multideck stack system as a guideline for public sector allocation of resources with priority for 'No Settlements' (unfit for human habitation), critical settlements, very bad settlements. Within this allocation some percentage of public sector resources can be earmarked for supply of 'austerely serviced site' for the poorest of the poor and the poor migrants to the city. These reception sites for the poor over a period of time will get included in the priority rating for upgradation. Whatever turnover of families was to take place in this settlement would have been completed. Those who remain would be ideally suited to the site as they would have firmed up their employment linkages and social base. In contrast to this approach if this type of site was to be austerely developed for relocation of families from the existing stabilised settlements in the city, the project may not take off as if families earmarked for relocation fear rupture of their economic and social linkages in the city and hence resist to shift. If they are forced to shift there is always a tendency to sell off the site and tend to find their way back into the 'no settlement', 'critical settlement', 'very bad settlement' or 'bad settlement' as per their income and saving capacity.

WHY THIS ALTERNATIVE

Several arguments can be offered about the justification of above

alternative. The most noteworthy are described below:

Economic Justification¹⁴

Studies have established that measures in terms of man-years of shelter provided per lakh of rupees invested on a repair programme is far more productive than new construction. According to the studies undertaken by HUDCO, it is more economical to repair the existing housing stock and prolong its life than to invest in new housing construction. The average cost of repairs to rehabilitate one square metre of plinth area ranges from Rs. 90 to Rs. 114 as against Rs. 415 per square meter of plinth area of new houses. Even on the basis of shelter year, the economics is in favour of a repair programme. Taking a typical scheme in Bombay, the cost per household shelter year works out to Rs. 148.24 in the case of repairs and Rs. 181.48 for new construction. The details are as follows:

<i>Particulars</i>	<i>Repairs*</i> (per unit)	<i>New Construction†</i> (per unit)
Average size of living area	28 sq. mtr.	30.50 sq. mtr.
Plinth area rate per sq. mtr.	Rs. 90	Rs. 476
Average Cost	Rs. 2520	Rs. 14,518
Size of family benefiting	8 members	8 members
Total household years of shelter provided	17	80
Cost per household shelter year	Rs. 148.24	Rs. 181.48

*Actual cost of Bombay repairs Board.

†New schemes received for sanction from Bombay area excluding New Bombay.

A study made in the National Buildings Organisation in respect of old Delhi city has brought out that an expenditure of Rs. 1 lakh on the structural repairs of old buildings will provide shelter to 18.4 households for a period of 15 years or to 275 household years. On the other hand, an investment of Rs. 1 lakh on the construction of 4 two-roomed housing units (each costing Rs. 25,000) would provide shelter to 4 households for 50 years or 200 household years. The expected life of new construction being assumed at 50 years and the cost of repairs at Rs. 120 per sq. metr. of plinth area.

A relevant comparison to judge the relative economics of a repair programme *vis-a-vis* new construction is the relative real cost involved in rehabilitating existing stock as against creating new stock. New housing construction requires huge investment to create educational, medical, transport and recreational services alongwith new housing. Repaired houses on the other hand do not call for fresh investments

¹⁴G.C. Mathur, *op. cit.*

since such facilities are already available. On purely economic considerations, therefore, a housing preservation programme is beneficial and prevents premature depletion of housing stock by obsolescence.

Social Aspects¹⁵

Social life in older areas has not yet been exhaustively described in social-psychological residential research. But there are some studies which offer glimpses of how life is lived, and of the nature of the social network. The elderly people interviewed in these studies remember and often miss the times when the neighbourhood was filled with boisterous children. But they are also sensitive to being disturbed by young people who move in with quite different life-styles. In the central residential areas there is a mixture of housing and different kinds of activities like small shops, artisans' workshops and offices, which according to the older people, create rich opportunities for meeting others. A well-developed social network is to be found especially in the more stable residential areas of the thirties and forties. In a study at present being conducted at Lund's University, it has been shown that social contacts are to a great extent limited to the very building and stair-well where a person lives. Even if these contacts seldom amount to an intensive neighbourly intercourse, a safety network is associated with the social framework. By simple neighbourliness, or perhaps just knowing that someone upstairs is keeping an eye on one, people find a basic sense of security in their living situation, despite being subject to different kinds of problems.

The fact that the social network exists in the immediate environment may explain why the people become so disturbed when threatened with a change of their dwellings. At times not even the knowledge that one may be able to continue living in the same part of town or even in the same neighbourhood suffices to eliminate their worries.

Cultural-Historical and Architectural Qualities

While improving the human settlements we can "retain the character, cultural-historical and architectural qualities of older housing".¹⁶ Thus, on the one hand, we will be able to upgrade the existing dilapidated settlements and on the other, will be able to project our cultural heritage.

Some of the settlements may, in fact, be historical sites. While upgrading it would be possible to synchronise historical background,

¹⁵Bright Krantz, *Contradiction in Modernization of Housing*, Lund University, Sweden.

¹⁶J. Blomberg and E. Eisenhauer, *Modernisation with Retention of Character, Evaluation of Cultural-historical and Architectural Qualities in Older Housing* 1979.

geometric and topological properties, etc., with functional and facility upgradation.

People's Participation

In conventional housing projects, it is only in isolated examples that the implementing agencies have been able to generate people's participation. In contrast in respect of settlement upgradation projects people's cooperation is an essential pre-requisite. The case studies of some of the human settlement upgradation projects amply underline that people come forward to cooperate with the agencies if they are earnestly involved right at the initial stages. Some guidelines in this respect need to be evolved to work as principle sign posts for the implementing agencies. The social scientists working in this area, state that on the basis of studies of power-relations and influence, we can set up a scale with at least six steps that illustrate what it is all about. The inhabitants can be given rights of the following kind:

Level 0 : Right of receiving information.

Level 1 : Right of reacting to receive information.

Level 2 : Right of face-to-face discussion and exchange of information.

Level 3 : Right of minority part in decision making.

Level 4 : Right of majority part in decision making.

Level 5 : Right of self-determination.¹⁷

If the agencies can do so then the settlement upgradation projects tend to take off successfully.

Affordability and Acceptability

Human settlement projects can be implemented at significantly less cost and at locations preferred by the beneficiary families. Thus these projects tend to be both affordable as well as acceptable. The Task Force on "Financing of Urban Development" made estimates of the 'costs of urban infrastructure'. They have included water supply, sewerage, sanitation, solid waste disposal, storm water drainage, roads, street-lighting and land preparation as the essential components of public infrastructure. Their low estimates is about Rs. 750 per capita of which about one-third may be regarded as off-site infrastructure. Of the remaining Rs. 500, if allowance is made for their provision for roads (Rs. 200 per capita) and land preparation (Rs. 60 per capita) which is of higher standard than envisaged in slum improvement schemes, a per capita expenditure of Rs. 300-350 (at about 1982 prices seems a

¹⁷Dagfinn, *op. cit.*

realistic estimate for slum improvement.¹⁸

This level of expenditure of few hundred rupees per family is totally affordable and the cost can be repaid by the families in 2-3 years' time. This short repayment period is much more acceptable to poor than a long term repayment period as employment and income characteristics do not permit acquisition of liabilities for a long period by the poor.

Similarly, the housing repairs rehabilitation and reconstruction of human settlements can also be made both affordable and acceptable. In Bombay the existing policy in respect of repairs and reconstruction needs a change by suitable legal amendments.

We are of the view that ownership of upgraded houses need to be given on full cost recovery basis to the families residing at present in the dilapidated buildings. In case of families who cannot afford the reconstructed or rehabilitated plinth area, the allotment of ownership space can be suitably reduced or the family allowed to sublet the unaffordable space component or the government can sublet the unaffordable space component to its staff or its nominees with clear stipulation that the family can have the space back for itself under circumstances of increase in income level of the family or increased space requirements.

Further, based on the above affordability criteria "Human Settlement Upgradation Institutions" can be set up at state and local levels or the existing institution can be reconstituted to help them undertake these functions and legal environment system created to help the programme take off. In this manner the existing resources available within the budgetary allocations coupled with institutional finance capabilities can help us undertake many times larger housing programme for the poor. An essential component of the public sector operations will continue to be to acquire land and develop it on the basis of 'austere standards' to help accommodate fresh migrants from the rural to the urban areas and from smaller towns to larger cities. These newly acquired areas can be 'normally' serviced and then over a period of time can be identified for upgradation as per the proposed human settlement upgradation priority programme stated above.

CONCLUSION

Based on above we are of the view that the housing problem of the poor can be adequately dealt with if we can reshuffle inter-programme allocation of resources in favour of improving the housing conditions

¹⁸Rakesh Mohan and others, *Existing Situation of Slums—Magnitude of the Problem*, (Mimeographed), Planning Commission, 1983.

in general and nominal serviced sites for the new migrants to the towns and the cities in particular. This way of dealing with the housing problem of the poor people in particular and populace in general, will be both affordable and acceptable. Following this alternative of dealing with the housing problem, we can raise the quality of our human settlements as well as absorb the poor in the total urbanisation process. The towns thus will be much better places to dwell in both for the poor as well as the relatively better off. ☐

Dimensions of Urban Land Price

N. ASHOK KUMAR

THERE are many studies focusing on the relationship between Urbanisation and Industrialisation, each following its own definition and analysis. It is rather an accepted fact that the latter has an impact on the former not only pertaining to the rate of growth of urban population but also the type of urbanisation. This is why, it is safe to assume that, at least in the days to come, the growth of economy will be dependent on urban areas, which provide the necessary infrastructure for the functioning of industries, which the rural areas cannot.¹ That industrialisation would certainly influence the growth of urban areas, is not a mere hypothetical assumption, e.g., the outlying areas of towns and cities in developing countries represent the quality in character reflecting the characteristics of rural as well as urban areas as they gradually merge with cities and towns. Growing Industrialisation and Consequent Urbanisation is a worldwide phenomenon. The present study proposes to highlight and analyse some of the important aspects of urban land price.

URBANISATION

Human habitations before being categorised as urban, as per the census, should consist of a minimum population of 5,000 with a density of 1,000 persons per square kilometer and at least 75 per cent of the male working population should be non-agricultural.² It is interesting to note that not only the density of population alone differentiates an urban area from the rural area, but the other factors like, class

¹E. Moore Wilbert, "The Social Framework of Economic Development", in Braibanti and Spengler (eds.); *Tradition, Values, and Socio-economic Development*, Duke University Press, Durham, 1961, p. 74.

Also see: Gerald Breese, *Urbanisation in Newly Developing Countries*, Prentice-Hall of India Pvt. Ltd., New Delhi, 1978, H.U. Bijlani, *Law and Urban Land*, Background Paper for the Seminar on Law and Urban Land, Indian Institute of Public Administration, New Delhi, 1977.

²*Census of India, 1971.*

structure, formal and informal relationships, occupational structure, topography, presence of infrastructure facilities, presence of different administrative wings, etc., are also included under the criteria to define an area as urban. Under the stipulation all the areas irrespective of being either a major panchayat, or town area committee, municipality or corporation, cantonment or a notified area are eligible to be declared as urban areas. In addition to the above parameters, the traditional, colonial or administrative or marketing factors, may also play their due share.³

'Urbanisation' is a process. A process involving a series of changes or actions whether voluntary or involuntarily undertaken in the system in order to obtain the required form or condition. If we consider that an urban unit is a product, a lot of operations may be required involving the use of raw materials like through a given period of time; to produce the Product. These series of actions, operations or changes through the period of time, in a simple term can be called as 'Process'. The conversion of rural into urban may not be a one-day phenomenon but a continuation of actions and operations on values, behaviour, culture, mode of living and economy of the society. Of course, the result may vary from place to place depending upon various factors and hence, the process of urbanisation may not be spread evenly throughout.

From the point of social scientists, urbanisation is viewed "as a process of moving to cities, changing from agriculture to other pursuits common to cities and corresponding change of behaviour patterns"⁴

Another school of thought considered Urbanisation "as the reorganisation of space through the redistribution of population among a hierarchial system of settlements of various sizes with a varying mix of urban or rural attributes along with a continuum in response to vertical shifts within the work force of the regional economy."⁵

The main reason of growing importance of studies on urbanisation during the last few years as well as in the years ahead, is that the process of growth of urban areas will always remain closely related to the national development and expected changes in the economic and industrial set-up. This means that a study of urban systems cannot be isolated from the considerations of developments that have been

³Gerald Bresse, *op. cit.*

⁴Clyde Mitchell, "Urbanisation, Detribalization and Stabilization in Southern Africa: A problem of definition and Measurement", Report of the International African Institute, London (UNESCO, Africa South of the Sahara), 1956, pp 693.

⁵Moonis Raza and A. Kundu, "Industrial Base of the Regional Economy and the Urbanisation Process in India", and Satyesh C. Chakraborty, "Urban Economic Base: A Review of contemporary Indian Expenditure", Paper presented at the Indo-French Seminar on problems of urban growth in developing countries, Delhi, 1978.

taking place in the industrial and economic fields.⁶ The fact that while urbanisation is considered to be a second revolution in terms of development, industrialisation which preceded the urbanisation can be considered as the first revolution. Any change in either of these two will have a definite reciprocal impact on the overall state of economy thus leading to changes in the living pattern. Urbanisation in terms of recent migrants to the cities in particular, and resulting in consequent growth of urban population therein leading to various problems like shortages in housing, growing unemployment, flourishing land market and ultimate degradation in human living condition, deserves serious analytical attention. It may be noted that the subject of urbanisation should not only be discussed from the point of view of cities and metropolitan areas alone but even major towns also, as these towns do play a significant role in the integration of agricultural and industrial sectors and on the overall regional and national economic growth. The parameters for study being industry, education, administrative centres, commerce, religion and historical traditions, etc.

URBAN LAND

One can distinguish rural land from the urban basing on certain accepted principles. For study purpose, the definition given in the Urban Land Act, 1976, can be taken into consideration. The act defines "any land situated within the limits of an urban agglomeration and referred to as such in the master plan", or "In the absence of master plan, any land within the limits of an urban agglomeration and situated in any area included within the local limits of a municipality, or a notified area committee, or a town area committee, or a city and town committee, or a small town committee, or a cantonment board or a panchayat but does not include any such land which is mainly used for agriculture purpose"⁷

Thus any land which is basically categorised as non-agricultural can be termed as urban land. At the same time, any urbanisable land cannot be included under the urban land category.

LAND PRICE

"What is the price?"—is a normal question while purchasing something or employing labour, etc. The word 'price' is too common in

⁶Masahiko Honjo, Introduction in M. Honjo, (ed.). *Urbanisation and Regional Development*, United Nations Centre for Regional Development Series, Maruzen Investment, Hongkong, 1981.

⁷Seetha Ram Reddy, and N.V.S.R. Gopal, *The Urban Land Act, 1976—Commentary*, Keerthi Publications, Hyderabad, 1976.

day-to-day life. The concept of price as per the meaning given in the Oxford dictionary, is 'payment of money in purchase of something' or 'the money' for which anything is bought or sold.⁸ Thus the usage of the concept 'price' is identified as 'an expression of the consensus on the values of different things, and every society that permits exchanges among men has prices.'⁹ Scientifically the concept of price can be described as value in exchange for a commodity or money paid in terms of the value of the commodity.¹⁰ It is clear that the concept price also has its own system like any other sub-systems, political, economic, cultural in the total system or society. It is a system which is controlling the economic activity and is a means and instrument in organising the economic sub-system. It weighs the wishes and aspirations of the customers in terms of prices they are paying in exchange for commodities or services.¹¹ Although the price system is well organised and has the capacity to organise the economic activity of the society, a section of the society is trying to have control over the prices leading to the reduction of income to the society. This way the main object of the concept to remove the monopolisation of some on the commodities which are listed out as scarce commodities in the society, of which the urban land is one. Hence the present paper deals with the trend of urban land price in the background of the urbanisation and industrialisation and how the price system is being controlled by the monopolies without allowing it to do its work.

IMPORTANCE OF THE STUDY ON URBAN LAND PRICE

As already discussed due to rapid urbanisation, pressure on urban land is being increased. As one of the factors for the fast pace of urban growth is migration, and the majority of the migrants are rural mass, a variety of civic problems, viz., housing, schools, roads, water supply, transport, growth of slums and squatter settlements, etc., which ultimately lead to the demand for land in urban areas.¹² The new entrants into the urban areas seek shelter paying high rents. Some may be in a position to pay such high rents, but majority of them feel difficulty and to escape from this problem they go for a piece of land either within or outskirts of the urban land and even for the urbanisable land depending upon the conditions prevailing in the given

⁸The Shorter Oxford English Dictionary, Oxford University Press, London, 1959.

⁹The New Encyclopaedia Britannica, Vol. 14, 1982, pp. 1005-7.

¹⁰Ibid.

¹¹Ibid.

¹²H.U. Bijlani, *Urban Land Prices—Some Contributing Factors and the Need for a Total Strategy*. A Paper presented in the National Workshop on Urban Land Price. RCUES, Hyderabad, October 9-10, 1982.

area and time. We shall discuss later about the land values or land price and rise in the price of the land in the background of the studies made in different countries and factors responsible for the escalation of price of the land.

As the demand for the urban land is increasing because of urbanisation or industrialisation processes or both, the surrounding hinterland as well as the rural land also get affected. The demand for the land apart from the reason mentioned earlier, increase or change in the capital investments in the adjacent urban centres accelerated the increase of land values. Developments particularly, economic and mostly industrial in the urban areas forced the people and directly increasing the demand for urban land leading to conversion of rural land to urban land. The rate of conversion process is more in the areas where the non-availability of land in the centre of the town and pressure on housing needs are much visible. Thus, both the pressure and the need for the housing force the public as well as the private sectors to use the land much away from the centre of the city and undertake construction activities. All this ultimately resulting in the rise of land prices in the areas between the new urbanised area and the already existing urban areas of the city.¹³ In his study, Darin Drabkin observed that the increase of service-sector employment is the recent feature of urbanisation. He has emphasized that besides the population growth and dispersed industrial location, the concentration of service employment in the cities and towns forced the authorities to bring out important changes in the land-use pattern. Because of the decisions normally being taken by the authorities particularly in change of land use from agricultural to urban land influence the rise in the land price besides the other important factors like inflation, national income, economic growth or development and urban population growth.¹⁴ But all the time the conversion of agricultural land into urban will not increase the price of land suddenly or at once in the beginning but the value of the newly converted rural land will slowly increase and the rate of increase of the new urban land depends on the availability of the advantages and importance of the location. This further clarifies that the value of the land increases not purely on the basis of its current use but also the possible future uses like housing, industries, schools and colleges, hospitals, etc.

¹³H. Drabkin, Darin, *Land Policy and Urban Growth*, Pergamon Press, Oxford (England), 1977. Also see: A.A. Schmid, *Converting Land from Rural to Urban Uses, Resources for the Future*, INC, Washington, DC, 1971.

¹⁴Hoyt, Homer, *One Hundred Years of Land Values*, The Chicago Real Estate Cycle, Chicago, 1940.

Various studies on urban land value and policy both in India and other countries in the world lead to the conclusion that the rate of price not only differs from country to country but within the different parts of the country, region and even in the same locality, same street or colony, etc. Land, for instance, abutting the road will fetch more price than the land located far away from the road in the same lane or street. Similarly, time factor. During different periods of time rate of increase of land price also changes. This is mainly because of the change in the standard of living and constant and continuous developments which take place in the given locality. Thus comparison of land price not only between country to country and region to region within the country but between the sites located in the same lane or colony is very difficult. In course of time, all these developments compelled the planners, economists and sociologists to study the urban land price system, and reasons and conditions which affect the land values. The study of the urban land price system is very difficult mainly due to non-availability of the actual values of the land during the given period of time. The sources of collection of data on the land price during different periods of time, stages of development and for all the localities in a municipal town, district, state and country are also not very much and even the data furnished by these limited sources are also not genuine from the point of view of the study. The main source of availability of data on land values is the land transaction offices and others might be the taxation department and the third might be the knowledgeable. In the former's case the officials of this department undertake land evaluations at regular intervals of time. Of the three sources of information, the second can be taken into confidence for study, because in the first case, the department whatever mentions the figures may not be true to the best of the real situation in the given period of time and area. This is because the price of the same site changes with the change of ownership¹⁵. The last method although easy to carryout, but in terms of validity it also carries the same weight as the other two methods. In this case average price mentioned can be considered. The rate of increase in land price can be judged from the series of change of ownership of a particular site and thus can be arrived at land price phenomenon. Of course, this method consumes lot of time and keen observation is required on the part of the researcher so as to note the price formation process and factors which affect the price of the land at different stages of time and developments in all aspects. This is because of the fact that increase in land price according to the general public is artificial. Hence the study of urban land price is a very difficult task as it involves

¹⁵See for further details, H. Drabkin Darin, *op. cit.*

many facets which have to be dealt with in detail in the background of the existing socio-economic and political conditions.

DETERMINANTS OF LAND PRICE

Article (i) of (f) of the Constitution has provided guarantee to every citizen of India the right to practise any profession, to acquire and to hold property—subject to restrictions imposed by Law. While giving the right to the citizen to hold property, the Constitution has taken care in order to provide social and economic justice to all the citizens and thereby to promote the welfare of the country as a whole, in regulating the monopoly of some over a vast stretch of urban land which is not a free resource and replenishable commodity. Hence the Urban Land Act (1976) under its sub-section (2) of Sec. (I) stated that no person shall be entitled to hold any vacant land in excess of the ceiling limit in any area which comes under the purview of the act.¹⁶ In spite of all the precautions taken by the government in amending the laws and bringing out new acts to check the control of the ownership of land by a few economically well-to-do people, the rise in land price became a common and continuous phenomenon not only in India but even in the other developed countries in the world. This might be basically due to lack of alternative profitable and easy investments¹⁷ where the question of relinquishing the burden of hiding the black money will also be visible and also returns on the resale of the urban land also will be normally 4 to 5 times more than the purchased value in the limited period of time. This may not be the case in purchasing of other assets like gold, shares in the business and company sectors where one has to wait for a long period of time and where the question of income tax problem will also arise.

There are two popular complaints in regard to the urban land price, viz., land price is too high and price of the land has been increasing rapidly. The factors for determination of the value of the land, increase of the value of the land are many¹⁸:

- (a) Failure of land act in its implementation. For instance in the state of Andhra Pradesh, the land act was introduced in 1976, but its effect is insignificant.

¹⁶For details see Seetha Ram Reddy and N.V.S.R. Gopal, *The Urban Land Act, 1976, op. cit.*

¹⁷J.J. Grenelle, *Urban Space and Land Prices*, Paris, 1970, Also see: E.A. Vallis, "Urban Land and Building Prices", in *Estates Gazette*, Vol. 222, May-June, 1972.

¹⁸N. Paul Balchin, and L. Jeffrey Kieve, *Urban Land Economics*, The MacMillan Press Ltd., London, 1977.

- (b) Restricted Policies on the usage of land. It is observed that in certain cases following the land use pattern strictly is leading to the adverse effect on the land price system. Prohibition of mixed-land use pattern should not be followed all the time and in all the areas. It should be recommended to the areas where such restrictions are necessary.
- (c) Presence of high percentage of vacant land in spite of large demand for the land sometimes leads to the rise in land price as the availability of vacant land and increased demand are inter-related to one another. To avoid this collection of tax on vacant land can be strengthened. So that the demand for land as well as concentration of urban land in the hands of a few can be minimised.¹⁹
- (d) Concentration of industries in a particular urban area is also responsible for the rise in the land value and hence decentralisation of industries is to be considered.
- (e) The more the tax and development charges levied and/or collected, the more is the increase in value of land.
- (f) Inflation and deflation process.
- (g) Improvement or provision of civic services like water, drainage and sewerage, efficiency, transportation and road also push up the value of the hitherto unserved land, etc.

Apart from the above factors, the other reasons which are worthwhile to be mentioned in the present context are allocation of a portion of land in a locality to government agencies to undertake their own development or service bound programmes directly affects the land price in that locality. Similarly the lacuna in the implementation of the rent control act. It is because of the rapid rise in the rental values, the value of the land is also increasing. Implementation of both the urban land act and rent control act in a right manner may help in arresting the high rate of increase in land price. It is also appropriate to point out the role being played by the private land dealers in the name of 'societies' is also responsible for the artificial rise in the land value. It would be better to restrict the activities of the false and bogus societies in playing a role in the urban land deal.

It is not correct to say that the land owner himself is responsible for increase in the value of land but it is the demand which is the cause for the rapid and continuous increase in the land price. Of

¹⁹Bir Singh Parsheera, *The Hindu*, June 23, 1985. Also see: "Property Tax: The Major Issues", *Nagarloka*, Vol. VIII, No. 4, Oct-Dec. 1976; and Rakesh Mohan, "Indian Thinking on Property Tax Reform" in Abhijit Datta (ed.), *Property Taxation in India*, Indian Institute of Public Administration, New Delhi, 1983, p. 127.

course, the ultimate beneficiary is the owner of the land may not be regular in all cases as in certain cases the owner of land may also be the loser due to the decrease in the demand for the land or decrease in the value of land due to the sudden changes incorporated in the land policy by the government in terms of land use pattern.

CONCLUSIONS

The subject of urban land price is not only a serious problem to the developing countries like India but even to the developed countries as the monopolisation of urban land by a few is one of the indications of the unequal distribution of wealth, weakness on the part of the government in the implementation of rent control and urban land regulations in the form of acts. As the value of the urban land increases the hinterland as well as the rural land also get affected slowly. Factors like growth of urban population particularly by means of migration, concentration of industries directly affects the land price system. The value of the land differs from place to place whether within our country or anywhere in the world and from time to time depending upon the changes that have been taking place and the location of the site. The factor 'location' is a widely accepted factor in the change in the value of the land. Studies made on this aspect showed that the higher is the rate of value the more the land is away from the central areas. This is from the point of view of the environmental condition, provision of civic amenities, socio-economic conditions of the inhabitants in the area and others. On the contrary the more is the rate of value increases the more the site is nearer to the functionaries like industry, educational institutions. The former type can be seen in the more commercialised and industrialised towns and cities, and while the latter type of situation can be seen in the industrialised and institutionally (education, health, temples) developed cities and towns.

Due to the well established conception of inter-relationship between the urbanisation, industrialisation and urban land price, with the arrival of the people who have migrated to the urban areas from the rural in search of employment the land value has been increasing and creating an ill feeling among the locals among whom the purchasing capacity is less. This ultimately leads to the conflict between the locals and outsiders as the latter has the more purchasing capacity and identified as economically sound. The subject of urban land price is a dynamic and challenging task for the students of Urban Planners economics and even administrators. Comparative type of study on the subject is always a welcome feature and leads to the solutions to arrive at in solving or checking price increase in land and do social and economic justice to all.

The Importance of Evaluation in the Performance of Local Government Programs: The Example of Apapa Local Government, Nigeria

ADEDOKUN JAGUN

THE IMPORTANCE of program evaluation in measuring the effectiveness of government projects cannot be overemphasized. It is the yardstick by which governmental agencies can determine whether or not their program objectives are being achieved. At the local government level, evaluation may serve as a means where programs are justified or nullified and better guides are evolved which would aid in determining the viability of specific programs.

In short, decisions affecting the continued existence of a program are better made after evaluation. Therefore, evaluation can also serve as a program pre-test "before large resource commitments are made."¹ However, in Nigeria a majority of these agencies lack the tools necessary to measure program effectiveness.

Perhaps of significance is also the fact that evaluation presupposes (correctly of course, especially in developing countries) a limited resource base.² As long as there are divergent programs vying for the meagre resources allocated to local government councils, it becomes appropriate that scarce funds must be seen as being used to achieve

¹Harry P. Hatry, et. al., *Practical Program Evaluation for State and Local Government Officials*. Washington, D.C., The Urban Institute, 1973.

²This resource may be in terms of capital or labour. But the emphasis here is on capital. Even beyond the confines of evaluation, some scholars contend that developing countries will probably never be able to accumulate wealth comparable to that of the developed world. Thus the implications of scarce resources stretch beyond narrow scope of local government Programme alone to the larger context of global economic order. For further discussions on this, see Romesh Diwan and David Livingston, "Development Strategies and Technological Choices in Developing Countries", N.S.F. Grant No. Int. 78-08830 (n.d.).

public objectives. This is not to say, however, that evaluation may serve as a criteria for determining which program should be funded. On the contrary, evaluation may be proformed only after a program has been selected and it has performed certain functions. Whether or not these functions are performed effectively, that is, in consonance with program objectives, is the preoccupation of evaluation.

Program evaluation in the context of this paper means a systematic and oftentimes scientific method of examining the performance of government (federal, local or state) programs. It may take several forms.³ It may be either diagnostic or cost-effectiveness-oriented;⁴ it may concentrate on identifying how specific programs have changed the condition of citizens and the community; and it may also attempt "to determine whether a program is achieving government objectives (therein, evaluating) both its positive and negative impacts."⁵ In the evaluation of program effectiveness, performance measures are used to determine the success of the public service being examined. This approach uses measures of effectiveness derived within the program to ascertain whether or not objectives are being realized. Therefore, it is different from efficiency measures which generally measure the output of a program in relation to its input (particularly capital). While effectiveness measures largely address themselves to the non-pecuniary aspects of a program efficiency measures are, in the main, a means for assessing how well a program has been able to maximize its expenditures.

Whether at the federal, state or local level, government sponsored programs in Nigeria are rarely evaluated. This is in spite of the fact that the increased responsibility now bestowed on local government authorities has suddenly thrust upon them an aura of importance in the scheme of things. Such lack of accountability is inexcusable in a situation where capital resources are limited; whereas in more affluent countries like the United State, more expenditure is being appropriated

³For a detailed analysis of several forms of evaluating, see Louis A. Ferman, "Some Perspectives on Evaluating Social Welfare Programs", *Annals of the American Academy*, Vol. 1, Number 3, pp. 143-156; U.S. Department of Housing and Urban Development, *A Guide for Local Evaluation*; Hatry, *op. cit.*, on specific evaluation studies encompassing different approaches, see Wesley G. Skogan, "Public Policy and Public Evaluations of Criminal Justice, System Performance", in John A. Gardiner, *Crime and Criminal Justice*, Lexington, Mass: D.C. Heath and Co., 1975. Joseph S. De Salve, "Benefits and Costs of New York City's Middle-Income Housing Program", *Journal of Political Economy*, Vol. 85, No. 1, 1975.

⁴Ferman, *op. cit.*, p. 144.

⁵Hatry, *op. cit.*, p. 9. The list here is by no means exhaustive. There are several other evaluation-types not mentioned here. But for the purpose of this paper the types listed are adequate.

annually for this purpose.⁶

Increased funding from both federal and state government has also brought about the redefinition of functions most of which relate to improved social welfare. How well a specific local government council has been able to perform an aspect of these functions is the concern of this paper.

PROGRAM OBJECTIVES, EVALUATION CRITERIA AND IMPLEMENTATION

The specific program examined at the Apapa Local Government Area concerns the removal of abandoned vehicles from public streets and roads.

As in many public programs, the objectives of this program are not specifically outlined in either a by-law or within the Apapa Local Government Council's files. Nevertheless this situation does not preclude an evaluation. In fact, program objectives may be pronouncements of government officials or what the evaluator deduces from the manner in which a program is directed?

Meetings held with Apapa Local Government officials responsible for the execution of this program and observation of the program point to the following as objectives:

Minimizing road accidents and traffic congestion that may be caused by visual obstruction created by abandoned vehicles, and
Improving the aesthetic quality of the road system within the local government area⁷.

Thus these objectives are related to both health and safety factors. It is assumed that the removal of broken-down vehicles would enhance people's interaction with their environment (a health-related factor); while simultaneously improving vehicular and pedestrian traffic (a safety factor). These objectives can be termed user oriented in that they are directly related to the improvement of the free flow of traffic both vehicular and pedestrian, and subsequently to promoting and creating a safer environment.

⁶See Burton A. Weisbrod, "Costs and Benefits of Medical Research: A Case Study of Policymen's", *Journal of Political Economy* 98, October 1974, pp. 527-44; and Raymond H. Nilkman, et. al., *Alleviating Economic Distress Evaluating a Federal Effort*, Lexington, Mass, D.C. Heath and Co., 1972, pp. 67-103.

⁷Objectives of government programmes are seldom clearly stated; therefore it is not unacceptable to 'tap' objectives from program officials or derived them in the light of its performance. For further discussion on this essential aspect, see, David Putman, et. al., *A Model of Programm Evaluation and Development*, Atlanta, Georgia, GEN n.d.

In view of the above stated objectives, the evaluative criteria⁸ for the program may be listed as follows:

- Prevention of vehicular or pedestrian accidents that may be caused by visual obstruction, and
- Neighbourhood cleanliness or the improvement of the quality of the area in question.

These criteria may be measured in a number of ways.

In the first instance, the best method to determine whether or not the program has actually caused a reduction in the number of accidents will be to check police records, that is if one is sure of having access to police records that will not only indicate the number of accidents but also their causes. Undoubtedly, police records alone cannot suffice for this type of analysis because they are not adequately completed.

The difficulties posed by the measurement of the effectiveness of public programs from official records have no doubt given impetus to the utilization of user-satisfaction as an appropriate criteria. The clientele group, that is, the intended beneficiaries, when identified, may provide information necessary for determining the success or failure of a program. The use of citizen's survey to collect this information is common in evaluative studies and is the approach used herein. In order to measure the level of effectiveness of the subject program, responses were rated and an index of satisfaction was developed.

PURPOSE OF PAPER

The purpose of this study is to examine a program executed by the Apapa Local Government Council for removing vehicles abandoned on public streets. In examining this program, the author intends to:

- Examine citizen's reaction to the program.
- Determine whether or not the program is achieving objectives in view of clientele group (the beneficiaries).
- Provide information that will aid the Apapa Local Government Council in determining the feasibility of continuing or modifying the program, and
- Demonstrate the need for the use of evaluation techniques in local government programs.

⁸Hairy, *op. cit.*, pp. 26-38.

METHODOLOGY

The methodology utilized is the survey method. A purposive sample of two hundred (200) citizens from two designated areas of the Apapa Local Government Council is used. A questionnaire was designed to elicit citizen's response to a range of questions which evaluated topics such as street cleanliness, the level of satisfaction and observations about the environment. The questionnaire contained six groups of questions and was administered by the author and four other interviewers.

Since the objectives of the programme are directed mainly toward a bifurcated group of pedestrian and auto-users, the sample is made to represent each group equally. Motor-cyclists are not categorically grouped in the sample; they are included among the auto-users.

Interviews were carried out in offices, residential houses and roadside shops. Corresponding ratings were used to measure respondents' answers about street cleanliness.⁹ The ratings are based on a scale of 1.0 to 3.0: the higher the rating, the worse the conditions. The only criteria for determining whether or not a street was clean was the presence or absence of abandoned vehicles.

The evaluation design used in this study is based on a comparison of two groups served by a program.¹⁰ The author intends to compare both groups level of satisfaction and also the ratings of cleanliness for each neighbourhood. This process will also provide information as to which group expressed a higher level of satisfaction.

PROGRAM PERFORMANCE: ANALYSIS OF EVALUATION DATA

As mentioned earlier, respondents were asked to indicate the level of cleanliness in their areas. They were asked about their perception of not only the presence or absence of abandoned vehicles in their areas but also the degree of abandonment. The respondents were asked to choose from a list ranging from 'clean' (*i.e.*, virtually no abandoned vehicles) to 'dirty'. Their responses were later coded by the author.

In Area, A¹¹ out of one hundred responses, two were not coded from the analysis on street cleanliness, primarily because of 'no opinion' answers. In area B, only one questionnaire fell within this category. Thirteen respondents in A indicated that their neighbourhood was

⁹Hatry, *op. cit.*, pp. 26-38.

¹⁰For a full discussion on several types of evaluative design that may be used in programme evaluation, see Hatry, *et. al. op. cit.*, pp. 39-69.

¹¹Streets were used as the basis for delimiting neighbourhoods. Therefore each neighbourhood comprises of two or three adjoining streets.

clean as compared to twenty-four respondents in area B. Of all respondents in both area A and B, approximately forty-seven (47) per cent responded that they had a fairly clean neighbourhood; while thirty-four (34) per cent rated their neighbourhoods as either slightly dirty or dirty (see Table 1).

TABLE 1 STREET CLEANLINESS IN TERMS OF DEGREE OF ABANDONMENT OF VEHICLES

	No. of Respondents		Total	Percentage
	A	B		
(a) Clean	13	24	37	18.5
(b) Fairly clean	53	40	93	46.5
(c) Slightly dirty	24	31	55	27.5
(d) Dirty	8	4	12	6.0
(e) No opinion	2	1	3	1.5
	100	100	200	100.0

Number of satisfied respondents (a + b) = 130 (health factor)

Percentage = 65 per cent

The following categories—clean, fairly clean, slightly dirty—are regarded as indicators of effectiveness as perceived by citizens.

On the whole, about sixty-five (65) per cent of the respondents indicated that they were satisfied with level of cleanliness of their area. Thus over one half of respondents believed that their areas are not characterized by an excessive number of abandoned vehicles. In essence, Table 1 can be regarded as an indicator of health-related factors as perceived by the respondents. The assumption here is that no area free of abandoned vehicles is most conducive to a better quality environment. Inversely, an area with an intolerable degree of abandoned vehicles is not conducive to health.

It should be noted that, comparatively, there is no significant difference in the responses between area A and B with regard to street cleanliness. When respondents were asked to indicate whether or not they had noticed either an increase or decrease in the number of abandoned vehicles in their areas in the last eighteen months, fifty-one (51) per cent said they had noticed a decrease. Only 6.5 per cent (see Table 2) noted an increase in the number of abandoned vehicles in their areas: and, out of this, five per cents were from B, 1.5 per cent were from area A. About thirty-eight (38) per cent believe that there had not been any significant change in the number of abandoned vehicles in their respective areas. Out of this percentage, about twenty-one (21) per cent were from area A and seventeen (17) per cent from area B.

TABLE 2 NOTICEABLE CHANGES IN THE NUMBER OF VEHICLES
ABANDONED (IN THE LAST 18 MONTHS)

	No. of Respondents		Total	Percentage
	A	B		
(a) An increase	3	10	13	6.5
(b) A decrease	47	55	102	51.0
(c) Just about the same	41	34	75	37.5
(d) No opinion	9	1	10	5.0
	100	100	200	100.0

Since this question is mainly designed as an indicator of how often abandoned vehicles are being towed away by local government, it can be deduced that approximately fifty (50) per cent of respondents believe that the LGC is properly handling the situation. The assumption here is that where a decrease has been noticed, the LGC is responsible.

In terms of safety, about forty-seven per cent believed that the removal of abandoned vehicles has facilitated their movement adequately (Table 3). Facilitating movement may be in the form of absence of visible obstruction (on the part of both pedestrian and auto-users) or it may evidence itself in the form of easier access to open space (a pedestrian-oriented aspect). As an indicator of satisfaction, about eighty-six (86) per cent of respondents were satisfied with the manner in which the removal of abandoned vehicles has been affected. Thirtynine (39) per cent from area B, and forty-seven (47) per cent from area A.

TABLE 3 LEVEL OF SATISFACTION

	No. of Respondents		Total	Percentage
	A	B		
Removal of abandoned vehicles has facilitated movement:				
(a) Adequately	53	40	93	46.5
(b) Fairly	41	37	78	39.0
(c) Poorly	4	20	24	12.0
(d) Don't know	2	3	5	2.5
TOTAL	100	100	200	100.0

Satisfied (a + b) = 171 (safety factor)

Percentage = 85 per cent.

The assumption here is that both 'adequately' and 'fairly' categories imply satisfaction as perceived by citizens on the safety factor.

In order to develop a practical measure of effectiveness from the survey, the author compiled the ratings of areas' cleanliness. This figure is used to provide data for measuring the satisfaction of respondents *vis-a-vis* the cleanliness of their areas (in terms of level of abandonment). In other words, the responses of citizens have been translated in order to offer a more objective and concrete measurement.¹² Although the result may be basically descriptive in nature, they do provide an alternative measurement.

The ratings of satisfaction range from a scale of 1.0 to 3.0 and as indicated earlier the higher the number, the dirtier the area. Therefore, if an area score totals between 1.0 and 1.5, it may be regarded as meeting the measurement standard for cleanliness while, if the total score is between 2.0 to 3.0, it has not.

In Table 4 the index of satisfaction for area A is 1.01 while that for area B is 0.96. This implies that respondents are satisfied with the cleanliness of their area (in terms of level of abandonment). It is important to note further that respondents in area B showed a lower index (which means a higher level of satisfaction) than did those in area A. However, one cannot go beyond stating that area B respondents are more satisfied with the cleanliness of their area to say whether or not in actuality area B exhibits a higher level of cleanliness than A. The questionnaire was not designed to answer this question; and it cannot. But if users responses are to be taken as an objective criteria, one may cautiously indicate that the likelihood of area B having a lower level of abandoned vehicles is strong.

TABLE 4 COMPARATIVE RATINGS, NEIGHBOURHOODS A AND B

Neighbourhood	Average Total Ratings*	Index of Satisfaction†	Number of Respondents
A	99.0	1.01	98
B	96.0	0.96	99

NOTES: Ratings based on a scale of 1.0 to 3.0; the higher the number the dirtier the neighbourhood.

*Average total ratings = cumulative ratings of satisfaction.

†Index of satisfaction = average total ratings/number of respondents.

The method utilized here is to compare the level of satisfaction between neighbourhoods A and B.

¹²This paper developed several criteria suggested for the conversion of subjective effectiveness measures to ratings. For a detailed discussion on this approach, see Robert H. Davis, "Measuring Effectiveness of Municipal Services", *Management Information Service*, Vol. 2, No. 1S-3, August, 1970.

SUMMARY

This paper has been able to examine the extent to which the Apapa local government council has been able to perform the task of removing abandoned vehicles from public streets and roads. Although 85 per cent of citizens interviewed expressed satisfaction with the programme, about 12 per cent indicated their dissatisfaction.

It is also important to note that Area B's respondents expressed a higher level of satisfaction than Area A. What is responsible for this situation is not very clear but it may be implied that in terms of the level of abandonment Area B probably has a lower number than A (see Table 4), therefore a higher level of cleanliness.

As a guide for local government evaluative capability, this paper provides a basis for the evaluation of other programs. In essence, it has also shown that the Apapa local government council programme for the removal of abandoned vehicles has achieved some objectives related to clientele-satisfaction. This conclusion is deduced from the preceding data analysis. In other words the programme has been deemed effective. This position should be emphasized especially since the measures used in evaluating the program here are effectiveness-oriented and efficiency-oriented.

In conclusion, local governments need to develop means by which their major public service programs will be evaluated at least on an annual basis. This process will enable them to recognise and assess programs with the view of measuring observed trends and providing for modifications as the need arises. □

Book Reviews

Local Government in the Third World: The Experience of Tropical Africa, PHILIP MAWHOOD (ed.), Chichester, Wiley, 1983, pp. xiii + 261, £ 19.60.

The book documents the experience of decentralisation in Africa, south of Sahara during the 'seventies and is written mainly from the point of view of the expatriate British officials. The main thrust of the book is the various attempts at restructuring the colonial British system of local authorities based on the doctrine of indirect rule in countries without British settlers (Ghana, Nigeria, Tanzania), and also the integration of two different types of local authorities—one for the British settlers and the other for the African natives—originally created under the doctrine of apartheid or its milder variation, "separate development for separate races" (Kenya, Botswana). In between, two countries feature quality of deconcentrated systems with the British and French approaches interacting with one another (Sudan, Cameroon). The Nigerian and Kenyan studies are contributed by local experts and display somewhat better perspectives.

The main flaw of the book lies in the absence of a systems analysis in the reform of local government in contemporary anglophone Africa so that an uninitiated reader is not even aware of the prevailing discriminatory and oppressive system of local government created during the colonial regime. Prioritisation of reform is seen against the assumed backdrop of a universalistic liberal model of local government which has never been a reality in the non-white British colonies. If one keeps this in mind then the country studies need to be related to the specific initial obstacles to a healthy growth of local government within these constraints. Without this situational backdrop, it is difficult at times even to understand the swings of the central initiatives in restructuring local government. For instance, the Nigerian example of federal support for local government has to be understood as a means of weakening the constituent states—vastly increased in number after the Biafra conflict. Again, the Kenyan experience of decline of local government has to be understood in the context of abolishing the institutional privileges of the British settlers and rehabilitating the moribund system of African local government. One would

expect the same fate in Botswana, but the bias of the author points to other irrelevancies.

The book starts by making a departure from the patronising attitude towards decentralisation in anglophone Africa by the earlier writers immediately after the decolonisation of Africa. It defines decentralisation in terms of devolution rather than deconcentration and hopes that the recent attempts of the socialist government in France to accord substance of autonomy to the local authorities would have their repercussions in francophone Africa as well, without much thought to the vestiges of colonial administration in those countries which the new rulers find most convenient to suppress local opposition.

The future of local government in tropical Africa is not worse than elsewhere in the Third World and any comparative evaluation should eschew hasty comparisons with the metropolitan country model. If local government survives, as it has under most oppressive regimes in history, it will survive due to its inherent practical arrangements in governance. Meanwhile, like the proverbial cat, newly independent countries in anglophone Africa may pass through as many as nine lives.

—ABHIJIT DATTA

The Government and Administration of Metropolitan Areas in Western Democracies; ALAN NORTON, Institute of Local Government Studies, Birmingham University of Birmingham, 1983, pp. 57.

This monograph contains the findings of a survey of approaches to the administrative problems of some of the major conurbations in Europe and Canada. Twelve metropolitan areas in eight countries have been surveyed here: three in the Netherlands, namely, Rijnmond (Rotterdam area), Amsterdam, and the Hague; Copenhagen in Denmark; Stockholm in Sweden; Frankfurt in Federal Republic of Germany; two in France, namely, Region Ile-de-France (Paris area), and Region Nord-Pas de-Calais (*Communaute de Lille*); two in Spain, namely, Barcelona; and Madrid; Milan in Italy; and Toronto in Canada. Some other metropolitan areas in the Western democracies have been excluded from the survey on several grounds; for example, the new constitutional status of Brussels in Belgium has reduced its relevance; the metropolitan areas in Norway, Irish Republic, Austria, and Finland are not of sufficient scale; and Portugal is yet to implement her system of metropolitan government. The Hamburg area has been omitted since it has inter-state rather than inter-local authority problems.

The present survey has been undertaken by the Institute of Local Government Studies, Birmingham University, in the context of the

Conservative government's decision to abolish the metropolitan counties in Britain. The intention of the author seems to be to compare the lessons of governing the major metropolitan areas in Western Europe and Canada, and to point out how the British government's proposed abolition of metropolitan government in Britain at the intermediate level between the central government and the local municipal government would go against the general experience of managing metropolises in the comparable democracies in the West. In all the countries surveyed in this monograph there has recently been a trend towards decentralisation of power from central government and its bureaucracy to the localities and in doing so an intermediate authority at the metropolitan level has been preferred on grounds of efficiency, effectiveness, democracy and equity. By hurriedly pushing through its decision to abolish metropolitan counties without allowing for any prolonged public debate over this policy of reforming local government so soon after the major reorganisation of local government in 1974, the Tory government in Britain seems to be an odd member in the family of western democracies. Apparently this decision has been taken on grounds of economy of public expenditure, but other equally, if not more, important issues like control of bureaucracy, protecting public accountability of the administration, responsiveness of governmental machinery, needs for social welfare, and local democracy have been ignored.

Prof. Norton has done a very interesting comparative study which would be welcomed by every student of metropolitan government. He has patiently built up his arguments through the somewhat detailed studies of the recent changes in this field in eight countries of the democratic West. The experience of the Netherlands shows that voluntary and fragmented approaches to the problems of metropolitan areas have been inadequate. Greater Copenhagen Council, on the other hand, has been functioning as an independent administrative entity discharging its responsibility of regional planning, including planning the major public utilities in the metropolitan area, and of disposing some financial incentives for local development. It has established a major role and influence in the metropolitan region. In Sweden voluntary and advisory regional agencies for planning, housing relocation and public transport have been tried in Greater Stockholm and found unsatisfactory. In West Germany the Frankfurt Region Union has particularly difficult inter-authority relationships and has already attracted undue criticism for the slowness of the planning process. The Region Ile-de-France, with Paris at its heart, is one of France's 22 regions and Autonomous Community of Madrid is one of Spain's 15 self-governing regions. Metropolitan Toronto has been a pioneer regional municipality, a form which has since been adopted

to provide for other supra-municipal authorities in the province of Ontario.

One basic difficulty of such a comparative study of government and administration of metropolitan areas in countries having different constitutional-legal systems lies in their differences in concepts of legal competence and of governmental roles. Hence the problem of inter-authority relationship assumes special importance and Prof. Norton has adequately taken care of this point. Another issue is the political character of the authorities at different levels. A metropolitan authority which is indirectly elected by the directly elected local authorities and enjoys only planning responsibility would be politically weaker than another which is directly elected and enjoys planning as well as implementing responsibilities. There must be political commitment and legitimacy, and also necessary finance in order to render any metropolitan government a respectful regional authority. Greater Copenhagen and Metro Toronto are the two cases where indirect election has worked successfully but not so successfully in the case of *Communaute de Lille* because of its constitutional weaknesses.

One general conclusion of this survey is that everywhere decentralisation has been accepted as a necessary means towards efficiency and effectiveness, as well as a means of achieving self-government. Successful experiments of metropolitan governments have been generally grounded in a thorough knowledge of local conditions and politics and they provide for review, flexibility and evolutionary growth. Each case is unique and demands intimate understanding of local circumstances. The specific power relations between the metropolitan authority and the neighbouring and/or constituent local authorities is an important factor; another important factor is the influence of historical tradition.

A strong case for metropolitan government rests on the fact that metropolitan areas need their own institutional arrangements for collecting and analysing metropolitan data, responding to the needs of the area, making decisions to overcome the problems and providing for area-wide needs. Such a focus of decision-making cannot be provided from central government level. The metropolitan authority has proved to be a valued form for the pursuit of the principle of decentralisation. Government and administration of metropolitan areas need some special legal framework and mandatory responsibilities for making strategic decisions in close association with local municipalities within the metropolitan jurisdiction. Moreover, metropolitan authorities need effective means to ensure implementation subject to rights of more local level authorities. Control functions cannot be discharged from the local level, rather these are better performed at the metropolitan level. Last of all, experience of the Western

democracies shows that metropolitan authority inevitably would need support and backing of the higher level government. What seems to be necessary is proper coordination of central government decisions so far as the metropolitan area is concerned. And in the case of British in recent years it is this support and backing of the central government which has been denied to the metropolitan authorities. As the fact stands today, all these painstaking researches done by the INLOGOV of Birmingham University have not however been successful in dissuading Mrs. Thatcher's government from legislating for the abolition of the metropolitan counties in England. The government's financial arguments do not sound convincing and there is every reason to suspect that the Tories made up their mind to abolish the metropolitan counties when they found these authorities managing the big cities of England under the political control of the Labour Party.

Although occasioned by a historical necessity in Britain, the monograph under review has become a fine academic document which would be an interesting reading to anybody anxious to know the problems and prospects of metropolitan level of government and administration anywhere in the free democracies, including India. In India the need of metropolitan level decision-making has recently been recognised but metropolitan level government, elected and properly accountable to the people, has not been provided for the million-plus cities, let alone other big cities. Here also one can find political devaluation of local democracy, reliance on the bureaucracy and scant respect to public accountability in the process of planning and development of the metropolitan areas. The INLOGOV study should be helpful to the policy makers in India for understanding the case for metropolitan government.

—ASOK MUKHOPADHYAY

Road Passenger Transport in India, P.G. PATANKER, Pune, Central Institute of Road Transport (Training and Research), pp. xii+227, Rs. 80.00.

The movement of persons and things from one place to another has long been recognised as an essential ingredient in the process of production and directly proportional to the progress of a society. The empirical exercises for estimating this relationship in a given state of taste and technology are not very infrequent today. The demand for transport which is largely generated by this movement are hardly met to the satisfaction of the users and the operators as well. The degree of success of a transport planning effort is recorded by the extent to which the imbalance between demand and supply is reduced to a minimum on a permanent basis.

For movement of factor inputs to the centres of production, for distribution of outputs to the demand points and for various types of economic, social and cultural activities use of transport is indispensable and as such 'pivotal role' of transport infrastructure in a country's "economic and social well-being" (p. 1) cannot be undermined. Thus the author rightly begins the first chapter of his book entitled *Road Passenger Transport in India* by expressing his conviction that "In a developing economy like India, road passenger transport deserves a high priority as it forms the backbone of the passenger mobility system and it is the principal carrier of the developmental process from one part of the country to another" (p. 1). But "From the facts and figures given in various chapters of the Book", the author claims in the section on Planning Perspective for Tomorrow of the last chapter of the book that "it should be crystal clear that passenger road transport, nay the entire road transport industry has received relatively low priority in the framework of the developmental planning in the Country" (p. 218).

The problem of eradication of poverty, particularly rural poverty, and inequality of distribution of income and resources which are among the basic concerns of the developmental planning since independence would have found, in the author's opinion, an effective solution if the pivotal role of road transport were reflected in the scale of investment in this direction. "The economy is on the threshold of the Seventh Plan period, with avowed goal of removing rural poverty. The pivotal role of road transport in supporting such a strategy needs to be abundantly appreciated" (p. 218). The author emphasises further the role of road transport "as a catalyst for economic development and has unlimited potential for integrating the country" (p. 7). This implicitly adds a cultural dimension also to the functional integrability of the nation.

Apart from realising the fact that "Adequate network of transportation is the *sine qua non* for balanced economic growth" the author's persistent emphasis on road transport as "the only significant, seedy and secured system for opening up vast tracks of interior backward areas and also an effective instrument of socio-economic development" in India is consistent with his firm stand that "Future planning for the overall road transportation system must accept this fact as the core of planning perspective" (p. 218). This not only provides a justification for the title given to the book but at the same makes his point of view amply clear.

Discussing the National Scene in Chapter I, and Rural and Urban state of art in transport in two successive chapters the interesting point that has been made out by the author is that from First Five Year Plan the percentage share of expenditure on road transport in the

total plan expenditure has decreased from 7.5 in the First Plan to 1.0 in the Sixth Plan touching a minimum in the Third Plan which worked out to be 0.3. While as "many as 4.52 lakh villages out of the total number of 5.76 lakh villages still remain to be connected by all-weather road", the Working Group of National Transport Policy Committee 1980 has estimated that of all these villages were to be a linked structure needed for rural development, an amount of Rs. 11,000 crores (at 1978 prices) will have to be spent for the purpose. Even if this development is spread over 20 years, as many as Rs. 550 crores will have to be expended annually on this programme" (p. 33). And "to meet growing demands of passenger transport in the country, by way of more and more buses and their infrastructural support, it is estimated that finances of the order of Rs. 3,000 crores over the next 10 years will be needed" (p. 25).

Estimates of future travel demand at the national, regional and urban/local level and their interaction combined with the choice of appropriate mode depending on what the traffic will bear, and the technological options made available by the present state of technology is the basic requirement of transportation planning. In a phased programme of action priorities are fixed as warranted by the urgency felt by the target group in question or in accordance with the avowed policy to be followed by the appropriate authority. However, the author's overwhelming support for road passenger transport getting high priority in the framework of developmental planning draws its strength mainly from its built-in flexibility, accessibility and serviceability throughout the year, unlike railways, which presumably go a long way in connecting the remote and poverty stricken rural India with the main stream of activities thriving in and around the urban and metropolitan complex.

Two estimates, one, of the National Transport Policy Committee (NTPC) and, the other, of the Working Group of Planning Commission on road passenger transport have been referred in the book. According to NTPC's estimates, "road passenger transport is likely to increase from the present level of 350 billion passenger kms. to 540 billion passenger kms. by 1992-93. This estimate bases on a growth rate of 5 per cent per annum hereafter, however, appears to be on a low side. The Working Group of the Planning Commission has assumed an annual growth rate of eight per cent, which appears to be more realistic. According to this estimate, the passenger kilometres by 1990 are likely to touch 698 billion. If this demand is to be catered within the next 10 years, it will call for additional 1,60,000 buses and their infrastructural support. Even if the demand as projected by the National Transport Policy Committee is taken, the requirement will be for additional 95,000 buses and their infrastructural support"

(pp. 7-8). But there is no explanation of the author why he calls the NTPC estimates unrealistic. To a serious reader it would have been highly beneficial if the author had given his comments on: (a) the methods that NTPC and the Working Group adopted for the projections, (b) their applicability in Indian conditions; and (c) the validity and reliability of the estimates, devoting at least three more paragraphs in his book.

The author is aware that in the "present circumstances, considering the priorities for the non-transport objectives, it is extremely difficult to raise the resources of this order" (p. 33) and he agrees to compromise with the low cost solutions of the NTPC. But that also may appear to be too high and if at all "road passenger transport may be able to cover its costs only partially through its revenues" (p. 219). The author took up this problem at the theoretical level and tried to resolve by adding a societal angle to it. By his own admission, "In Indian context, the conflict between societal obligations and economic principles would have to be ideologically resolved in favour of the former" (pp. 219-220). In all these words the author perhaps meant that "Road Transport is the principal instrument to support" the goals laid down in the Seventh Plan Document which "dedicates itself to food, work and productivity as a basis for ameliorating poverty" (p. 219). This, however, provides a sound theoretical justification in support of this investment on road transport which however gets diluted to a large extent when he shifts emphasis from augmentation to utilisation of existing capacity drawing upon Shri. L.K. Jha's words and saying "Emphasis will be on getting more kilometres out of the existing fleet than vehicle additions. upgrading the existing roads than constructing new roads, upgrading the existing infrastructure like depots than more depots, etc." (p. 220). If at all a justification behind road construction to link the rural areas between themselves and with urban complex may be eked out on the societal consideration, though "In the rural context, needs of freight transportation are closely linked with passenger transportation somewhat in contrast to the urban scenario" (p. 219). But it is somewhat risky to extend the same justification to urban road passenger transport agencies particularly state transport undertakings (STUs). Notwithstanding the explanations given by the author the fact that the STUs in India use social obligation factors as convenient cover to hide their inefficiency cannot be denied. Instances are not rare where a highly remunerative route after being nationalised proved to be a losing project. Accumulated loss of "Rs. 1,200 crores on a total investment of Rs. 2,021.40" (p. 69) cannot be fully explained by the increased cost of operation and/or operating non-remunerative routes alone. A fare structure administered may result in a financial imbalance of an undertaking if it does

not cover the cost of operation. But a reasonable level of efficiency of performance will surely be reflected in the economic results like passenger kms. or any other form of output. As a matter of fact, it may be considered a social obligation to offer the transport services at a price less than the cost occasioned to curb the cost-push inflation as transport service is basically an input. Loss of revenue due to this may be made up by the subsidy from the government which now-a-days has become a permanent claim of most of the STUs. Therefore there is little scope for euologizing the performance of the STUs in India even comparing with that of the private operations. Without evolving an effective control measure and specifying the target group of the computers and without assigning the priority to the socially preferred purposes of journey the presently administered pricing policy which is said to have been based "primarily on the economic rationale, and also conform to predetermined social objectives" (p. 97) will confine its role to window-dressing only leaving a large number of STUs permanently in the red. However, the author has devoted a big chapter on Operational Productivity and Efficiency (Chapter 5) in which he tried to break away from the traditional approach and made it more comprehensive by showing the interactions of the four transport system sectors, namely, (1) Government, (2) Society, (3) Operator, and (4) Users even schematically. The author suggested improvements in a number of ways, by reducing communication gap between management and worker and by developing a meaningful dialogue between the management, public and workers through proper representation. Scientific labour-management, combined with productivity oriented incentive scheme, effective fleet utilisation, fuel conservation and application of modern management techniques for material management and inventory control can go a long way in improving the performance of the STUs in India. A lot more depends upon the "existence of a qualified, professional and dynamic management in an effective and well knit organisational structure which the author takes up in Chapter 6, entitled Effective Management. In Chapter 7 entitled Trip Into Tomorrow the author deals mainly with the shape of things to come and a number of strategies like pricing, landuse planning, technological options, development of other systems including water transport, setting up a unified metropolitan authority and the introduction of computer technology have been discussed to grapple with the situation. These are all very valuable suggestions. Nevertheless, a second reading of the draft of the book would surely have improved the text by far from a number of standpoints particularly from the logical compactness and mutual compatibility of the policy options.

All said and done one must admit that the author has offered a long awaited book to the professional audience which is rich not only

in material content but in coverage as well. The first three chapters are the main plus-points of the book. Linking the road transport problem with the basic issues of national developmental planning in the manner he has attempted deserves appreciation from serious readers.

The review will remain largely incomplete if some lapses mostly of editing are not mentioned with an expectation of improvement in the next edition. The first point that should be made is the absence of a bibliography/references and an index at the end of the book. In Chapter 2 in a section entitled Various Studies (pp. 48-49) "a list of various studies made by individuals, group or commissions" has been given consisting of only eleven titles which apart from being far from exhaustive disturbs the flow of the text as does the earlier section also entitled Formation of State Road Transport Corporations (pp. 42-48). The former should enrich the bibliography, if it were given at all, even admitting the fact that transport planning in India is very poor and the research works printed and mimeographed are poorer, particularly in number. The materials of the earlier section could be made available to the reader in an appendix if not in a separate chapter on the brief history of State Road Transport Corporation in India.

Secondly, the list of 50 tables does not contain the 4 tables given in Annexure 1. All the 50 tables and 3 more in the annexure have been given titles but in 11 cases out of the 50 the titles are missing in the text. On page 23 there are virtually two tables, the first one has been described as a table and a title has also been given but has not been included in the list. The sources of data used in a number of tables have not been mentioned. Fig. 7 on page 197 has also missed its title that was given to it in page xii. Two plates containing 7 photographs of different modes, road condition, overcrowding and traffic chaos which have relevance to the subject dealt with have gone unaccounted both in page numbering and in contents as well. These can be explained either by thorough negligence or very naive handling of things. The climax of all these will be reached if anybody likes to know from the book the date of publication and the name of the copyright holder of the book.

—D. K. HALDER

Central Place Theory, LESLIE J. KING, London, Sage Publications, 1984, pp. 95, \$ 6.50.

Central Place Theory propounded by Walter Christaller and later on developed by August Losch and others, seeks to provide an explanation of the numbers, cities and locations of urban settlements in essentially rural settings. Both Christaller and Losch in their studies

have tried to spell out the economic interdependencies between town and country and developed the notions of economic function and a corresponding hierarchy of different sized urban settlements.

Leslie J. King discusses the writing of the two scholars and recalls that the theory is consisted of a set of statements that are logically connected and reasonably consistent and are derived within the framework of certain assumptions. According to Webber these assumptions consist of two subsets. The one contains four 'environmental' assumptions, namely: "(i) there is a static economy upon, (ii) an unbalanced, homogeneous plain in which, (iii) changes in agricultural location do not affect town location, and in which, (iv) we consider only industries and firms which sell goods to town hinterfeuds". These describe the setting of the theory. Within it, both producers and consumers are bound by six 'behavioural' assumptions which are: (i) firms choose maximum profit locations, (ii) all points are served by some firm in every industry, (iii) no firm makes abnormal profits, (iv) areas of supply and sales are as small as possible, (v) consumers patronize the nearest seller, and that (vi) society maximises the degree to which firms agglomerate.

Central Place Theory, in fact, useful in interpreting settlement patterns, in explaining the decline of many small villages, in planning the location of new settlements and in analysing the social structures of rural communities. The concepts of hierarchies, nesting trading areas, and so on have wider applicability than simply to rural areas. In many Third World economies today, the overrapid urbanization is being concentrated in alarming proportions into one or two large cities, and it appears inevitable that catastrophes will result unless a more evenly balanced development of the country side occurs. How far this can be accomplished through a strengthening of the roles of smaller urban centres remains an open question. The theory is at least as relevant in this context as any other blue-print for regional development.

As a matter-of-fact, the author provides not only an overview of central place theory and its antecedents but also a description of the different lines of work that have flowed from the theory. He also discusses the application of the theory in planning settlements in the vastly different contexts of Canada, Ghana and Israel. Finally, King outlines more recent attempts to rewrite the central place theory in more formal mathematical language.

Leslie J. King has put in his best of efforts in his book to highlight the importance of central place theory in different contexts. Although it is true that rigid applications of the theory to problems in economic development planning have not been spectacularly successful, nevertheless the theory does provide several useful building blocks.

The book is undoubtedly one of the finest attempts to present a non-technical overview of this theory and its antecedents. In India, attempts have been made in the past by certain research institutes to utilize the theory in the context of regional development. But somehow these attempts could not make any dent in this field as they were outside the mainstream of development.

—GIRISH K. MISRA

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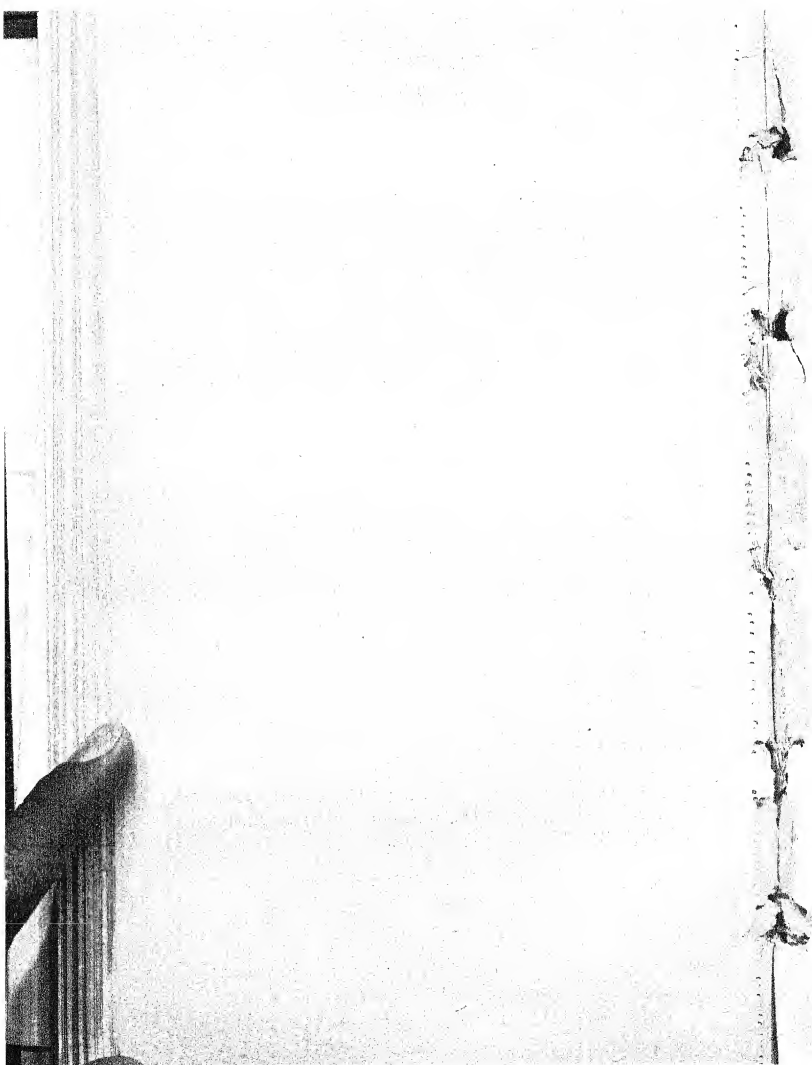
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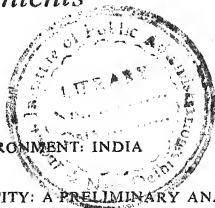
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*Metropolitan Cities Environment: India**

G. S. SASTRY

SEVERAL WELL-KNOWN pollution episodes (Meuse Valley in Belgium (1930); Donora Valley in USA (1948); London and New York smog (1952, 1963); Oil Tanker, Amoco Cadiz's wreck (1978) in the Brittany Coast of France (Liptak 1974, Royston 1979, Koren 1980) followed by an equally strong societal protest against the activities suspected to be concerned with the environmental degradation at the global level (construction of a giant fertiliser factory in Bombay; construction of a big copper smelter in San Juan, Philippines (1978), Kuala Juru's battle for servival in Malaysia, construction of the international airport at Narita, Japan (1978), Brazilian delegation to the UN Conference on human environment in Stockholm, Sweden (1972) (Royston 1979), recent Chipko Movement of Himalaya, Mathura Oil Refinery and Kerala Silent Valley, not only developed sudden upsurge in the environmental awareness among the people but also exposed them frequently to the fundamentals of ecological principals and problems like ecological balance, environment, environmental pollution, environmental crisis, etc. Increasing sophistication and complexity of the various man-made systems accompanied by growing environmental degradation in recent decades, and considering the importance attached by the general public to the quality of life and environment, the overwhelmed human concern about the environment is strongly emerging as a precautionary measure to refrain from the further damages against the nature, for which man has been constantly and indiscriminately addicted to in the name of the process trio—industrialisation, urbanisation and modernisation.

The environmental problems, confined originally to the developed world due to the massive industrialisation and affluence, percolated slowly to the developing world because of the hectic developmental activities and rapid population growth (Dworkin 1974; Podoinitsin 1977). In the developing countries, specially, the emerging environmental

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problems are mainly attributed to the lopsided development biased invariably towards the urban areas. The accelerated biased developmental activities in recent decades have resulted in innumerable urban and environmental problems like congestion, overcrowding, pollution, strain on urban infrastructure and amenities, etc., and the large cities and the metropolitan areas are the main victims of such elements of environmental degradation. As size and distribution of population and industrial activities have critical relevance to the quality of environment and hence, the quality of life, the present induced but biased developmental activities have been producing the least desired cities of 'parasitic' nature instead of the most expected cities of 'generative' ones (Bose 1978). This crucial parasitic phenomenon of metropolitan cities has been alarming for a greater human concern in general and the environmentalists' concern in particular for a workable trade-off between the natural and man-made environment to achieve a reasonable harmony between the quality of environment and the quality of life. Incidentally, the emerging urban and environmental problems of the developing world had already been identified by the UNEP experts as early as 1974 and had recommended for an in-depth study of urban housing and planning to keep the environmental degradation at its minimum (Dworkin 1974).

In India, the emerging environmental problems are mainly attributed to the greater concentration of population and industrial activities virtually in a few metropolitan centres (Calcutta, Bombay, Delhi, Madras, Ahmedabad, Kanpur, etc.) (Sharma 1977, Bharadwaj 1977). Indian urbanisation characterised as 'top heavy' (Ramachandran 1983) with the phenomenal growth and decline of large cities and small towns respectively both in population share and number of towns, corroborate the polarisation process of the Indian urban population. Again, the fact that 67 cities that have recorded 50+ per cent growth during 1971-81, all hail from the class I cities chunk, retraces the on-going polarisation process (Table 1).

TABLE 1 DISTRIBUTION OF CITIES WITH 50+ PER CENT POPULATION GROWTH DURING 1971-81: INDIA

Decennial Growth (in percentage)	No. of Cities with Population				Class I Cities
	Million	Half a Million	Quarter Million	Lakh	
50-100	2	11	14	35	62
100-150	—	—	2	1	3
150+	—	—	—	2	2
Total	2	11	16	38	67
Maximum	76.2	95.9	143.2	246.6	246.6
Minimum	56.7	51.1	51.1	50.2	50.2

Population is the single major factor of threat to the environmental quality (Bandhu, Bharadwaj, Balakrishna, Chauhan, 1977). According to the reliable demographic predictions, the Indian urban population would likely to record 150 per cent increase during the last thirty years of this century with lopsided and disproportionate concentration in the large cities and the metropolitan areas (Chandrashekar 1978). As any further extension in the metropolitanisation process would endanger the entire urban environment in general and the metropolitan environment in particular, the future expected trend of metropolitanisation process would call for an efficient environmental planning strategy to maintain the ecological balance, to assure a reasonably good urban environmental quality.

The urban environment, identified as a highly integrated system of both natural and man-made environment in various mixes, is the base for numerous complex, perverse and pervasive environmental problems that are multi-dimensional in nature (Perloff 1977). Therefore, any attempt towards the identification, analysis and prescription of such urban environmental problems can be effectively organised through the multi-disciplinary approach. However, the present paper attempts to analyse only one such dimension, *i.e.*, air pollution at the metropolitan cities level.

Of the three main components of pollution (air, water and land), the air pollution, by virtue of its vitality and universality, has been recognised as the most vital component. Air pollution, defined as the existence of certain specified pollutants (Suspended Particulate Matter, Oxides of Nitrogen, Carbon, Sulphur; Dustfall, etc.) in the air in a quantity above the ambient air quality standards prescribed for an area or a region, is an outcome of several natural and man-made processes (Volcanic eruption, Industrialisation, Urbanisation, Technological explosion, etc). Air pollution affects the human health and welfare, flora and fauna, etc., to a very great extent (Stewart 1979, Liptak 1974, Koren 1980, Berry, *et al*, 1974). Air pollution that had existed as a non-entity for several centuries, has been recording an exponential increase in the recent decades due to the rapid increase in several man-made processes of overall development. Having experienced the vitality and universality of the air pollution problems at both the global and several regional hierarchic levels, the environmentalists are deeply concerned in developing robust air quality models at various spatial levels to identify and abate the air pollution, and to incorporate effective monitoring techniques to maintain a reasonably good and constant air quality standards (Berry, *et al*, 1974; Weber 1982). Though, there is no areal bar for air pollution, for obvious reasons, urban areas record higher pollution level than its counterpart.

In India, the rapid increase in several man-made processes (Table 2)

followed by frequent reports of air pollution incidents in various dailies, both the general public and the environmental experts are of the unique opinion of the rapid increase in the phenomenon of air quality degradation, particularly in the large cities and the metropolitan areas. This process of environmental degradation has activated the environmentalists to quest for an optimum air quality standard to formulate control measures on environmental impact, and to monitor the magnitude of air pollution from time to time. Incidentally, Government of India, based on the expert body's recommendations, enacted several rules on the air quality standards in 1981 called 'ambient air quality standards' for the strict adherence and maintenance of the general air quality levels. As an immediate need for such studies of environmental problems and perception, the present paper attempts to analyse the level, impact and correlates of air pollution in the metropolitan cities of India.

TABLE 2 SOME INDICATORS OF RAPID GROWTH OF MAN-MADE PROCESSES 1951, 1961, 1971: INDIA

Year	Indices			
	Total population	Total urban population	Industrial development	Vehicular usage
1951	100	100	100	100
1961	122	126	188	257
1971	152	175	320	541

OBJECTIVES

The present paper on air pollution at the metropolitan cities level, is organised in the form of answers to the questions posed on the various aspects of air pollution. The questions posed are : (a) Does the metropolitanisation process lead to air pollution? (b) Are the million cities polluted? (c) What are the levels of air pollution? (d) Is there any relation between the city size and air pollution? (e) What are the suspected impacts of air pollution on human health? (f) Is there any relation between the landuse pattern and air pollution? (g) Is there any seasonality in air pollution?

DATA BASE

The air quality data of the metropolitan cities of India published by the NEERI, Nagpur (Sundaresan 1980), census and other reports formed the data base for the study. The air quality of the selected

metropolitan cities is analysed here based on the four air quality parameters; Suspended Particulate Matter (SPM), Sulphur Dioxide (SO_2), Sulphation Rate (SR) and Dust Fall (DF).

METROPOLITAN SYSTEM : CONTRIBUTION AND CORRELATION

By 1971 census, India had nine metropolitan cities contributing 25.6 and 27.2 per cent to the total urban population and total urban employment. The rapid polarisation process during 1971-81 has recorded significant change in number, population and employment (Table 3).

TABLE 3 CONTRIBUTION AND CHANGE IN THE METROPOLITAN CITIES CHARACTERISTICS 1971, 1981: INDIA

Year	No. of cities	Population (in million)	Share in TUP	Percentage Change in TUP 1971-81	Employment (in million)	Share in TUE	Percentage change in TUE 1971-81
1971	9	27.4	25.6	53.3	8.7	27.2	46.9
1981	12	42.0	26.9		12.8	28.1	

NOTE : TUP—Total Urban Population.
TUE—Total Urban Employment.

Metropolitanisation refers to the growth of metropolitan centres rooted in industrial and tertiary economic base (Prakasa Rao 1983). The correlation analysis of the occupational categories of workers and population growth of the metropolitan system have revealed that the metropolitanisation process is consistent and is leading towards industrialisation and tertiarisation (Table 4). The implication of the revealed process is that any further extension in the metropolitanisation process would lead to the multiplication of both industrial and tertiary sectors respectively.

The correlation analysis of the four air quality parameters (SPM, SO_2 , SR and DF) and a few selected city characteristics that are suspected to be cause and consequence of the air quality level revealed that all the four air quality parameters are significantly correlated with the death rate, industrial activities, vehicular usage and population density (Table 5). Again, the vehicular usage is significantly correlated with the industrial activities. In India, due to the present and the future expected trend of metropolitanisation coupled with the revealed after effects of industrialisation, tertiarisation and air quality degradation of the metropolitan cities, the metropolitan environment is being degraded faster than the entire urban system.

TABLE 4 CORRELATION MATRIX OF OCCUPATION AND GROWTH OF METROPOLITAN SYSTEM OF INDIA: 1971, 1981

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	1.000						
2.	0.350	1.000					
3.	-0.529	-0.319	1.000				
4.	-0.306	0.022	-0.033	1.000			
5.	0.468	0.170	0.551	0.619	1.000		
6.	0.219	-0.330	0.662	0.413	0.693	1.000	
7.	-0.258	-0.061	0.634	0.416	0.732	0.691	1.000

1. Primary 2. Household 3. Manufacturing 4. Trade 5. Service
6. 1961-71 population growth 7. 1971-81 population growth

TABLE 5 CORRELATION MATRIX OF AIR POLLUTION LEVELS AND A FEW CITY CHARACTERISTICS: INDIAN METROPOLITAN SYSTEM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	1.000							
2.	0.213	1.000						
3.	0.236	0.394	1.000					
4.	0.270	0.077	0.233	1.000				
5.	0.671	0.607	0.672	0.550	1.000			
6.	0.714	0.602	0.648	0.678	0.778	1.000		
7.	0.691	0.582	0.668	0.634	0.691	0.756	1.000	
8.	0.660	0.539	0.816	0.791	0.910	0.629	0.876	1.000

NOTE: 1. Level of SPM
2. " SO₂
3. " SR
4. " DF

5. Death Rate
6. No. of Industries
7. No. of Vehicles Registered
8. Population Density

AIR POLLUTION ANALYSIS

The four air quality parameters chosen for analysis besides good indicators of the existing air quality are the main elements of air pollution. The composite air pollution levels are derived here based on the level of severity of the pollutants compared with that of ambient air quality standards. Of the four air quality parameters (SPM, SO₂, SR, DF), the metropolitan cities are under the very strong influence of SPM and DF. The sources for these two parameters being the industrial activities and the vehicular usage, the existence of them in excess to that of the prescribed ambient air quality standards can be well accounted for by the rapid increase in their respective activities (Table 2). The suspected impacts of SPM and DF are a greater incidence of Respiratory Diseases, Bronchitis, Cardiovascular Disease, Cancer and Tuberculosis. The general suspected impact of air pollution on human health is detailed in Table 6. By growth pattern,

SPM and SR, SO₂ and DF are in increasing and decreasing trends respectively (Table 8).

TABLE 6 SUSPECTED EFFECTS OF AIR POLLUTION ON HUMAN HEALTH

<i>Pollutant</i>	<i>Associated Disease</i>
Sulphur Dioxide, Sulphates, Particulates, Benzo (a) pyrene, Asbestos, Ambient Air Pollution; also numerous other agents whose incidence is localised, such as Nickel, Beryllium, Chromium	Total Cancer; Cancer of the Respiratory System; Cancer of the Digestive System
Particulates, Sulphur Dioxide, Nitrogen Dioxide, Smoke, Auto exhaust	Respiratory, Disease Mortality and Morbidity
Same as above	Bronchitis
Soot Fall, Smoke, Sulphur Dioxide Sulphates	Pneumonia
Sulphur Dioxide, Particulates	Tuberculosis
Ambient Air Pollution, Nitrogen oxides	Emphysema
Ambient Air Pollution, Sulphur Dioxide, Sulphates, Particulates	Cardiovascular Morbidity and Mortality

SOURCE: C.T. Stewart Jr., 1979

The composite air pollution levels derived based on the four air quality parameters (SPM, SO₂, SR, DF) revealed that : (i) The metropolitan system is gradually tending towards the poor air quality, and (ii) Calcutta and Jaipur are the highest and least polluted metropolitan cities of India respectively. The second and subsequent levels are occupied by Bombay, Kanpur, Hyderabad, Delhi, Ahmedabad, Madras respectively (Table 9,10). This result is confirmed by the 1979 data base also. The correlation analysis of population size and air pollution level showed that the population size is an exponent of air quality (Table 7).

TABLE 7 AIR POLLUTION LEVELS BY BROAD LANDUSE AND THEIR CORRELATES: INDIAN METROPOLITAN SYSTEM

<i>Landuse pattern</i>	<i>Air Pollution Level</i>		<i>Variables</i>	<i>Correlation Coefficient</i>
	1978	1979		
Residential	7.99	10.34	Air Pollution level with Residential Commercial Industrial Population size	0.41
Commercial	10.84	10.92		0.56
Industrial	11.16	11.32		0.72*
				0.70*

*Significant at 5 per cent level.

Air Pollution and Landuse Pattern

In an urban area, landuse pattern is an important determinant of air pollution (Berry, *et al.*, 1974). The composite air pollution levels derived by the broad landuse pattern showed that the industrial and residential areas are the highest and least polluted areas of the metropolitan cities respectively. The correlation analysis further revealed that the industrial and residential landuse contribute maximum and minimum respectively to the overall air pollution level. By both level and contribution the commercial landuse occupies intermediate level (Table 7).

The levels of four air quality parameters derived by the broad landuse pattern revealed that all the three landuse patterns are under the strong influence of SPM and DF. The SPM and SO_2 are consistently the highest in commercial and industrial areas respectively. Here, the peculiarity of SPM being the highest in commercial area could be attributed to the rapid increase in the vehicular use (Table 2). By growth pattern, SPM and SR, SO_2 and DF have consistently recorded increasing and decreasing levels under the residential and industrial landuse patterns respectively. While under commercial landuse the levels of all the four parameters are in decreasing trend (Table 8). The revealed improvement in air quality under the commercial landuse could be attributed to the recent attempts of efficient commercial landuse planning in the metropolitan cities of India.

TABLE 8 AIR QUALITY LEVELS OF THE METROPOLITAN SYSTEM BY BROAD LANDUSE AND AIR QUALITY PARAMETERS
1978, 1979: INDIA

Parameters	Residential		Commercial		Industrial		Total	
	1978	1979	1978	1979	1978	1979	1978	1979
SPM (mg/m^3)	209	230	323	305	261	289	258	273
SO_2 (mg/m^3)	26	19	28	27	45	34	31	26
SR ($\text{mgSO}_2/\text{100 cm}^2$)	.17	.18	.33	.27	.30	.37	.26	.27
DF (MT/Km^2)	20	16	27	26	28	19	33	20

Air pollution levels derived at the individual city by broad landuse pattern revealed that : (i) the metropolitan system is gradually tending towards poor air quality, (ii) Calcutta as the highest polluted metropolitan city under all the landuse activity, and (iii) Jaipur as the least polluted city under all the landuse activities. The 1979 data base also confirmed the derived levels of 1978 (Table 9) except some improvement of air quality of Calcutta under industrial landuse. The improve-

ment in air quality under the industrial landuse of Calcutta in 1979 could be due to some effective pollution abatement measures undertaken in 1979 or the prevailed local climatic conditions.

TABLE 9 AIR POLLUTION LEVELS OF THE METROPOLITAN CITIES BY BROAD LANDUSE PATTERN 1978, 1979: INDIA

Cities	Residential		Commercial		Industrial		Total	
	1978	1979	1978	1979	1978	1979	1978	1979
Calcutta	2.09	2.50	2.66	2.77	2.75	2.56	7.50	7.83
Bombay	1.08	1.42	2.00	2.27	2.75	3.17	5.83	6.86
Kanpur	1.50	1.80	1.67	1.91	1.59	1.92	4.76	5.63
Hyderabad	1.50	1.63	1.67	1.92	1.59	1.76	4.76	5.31
Delhi	0.83	1.25	1.42	1.42	1.16	1.17	3.41	3.84
Ahmedabad	0.41	DNA	0.92	DNA	0.75	DNA	2.08	DNA
Madras	0.42	0.81	0.34	0.94	0.41	0.91	1.17	2.66
Jaipur	0.16	0.37	0.16	0.42	0.16	0.59	0.48	1.38

DNA : Data Not Available.

Seasonal Variations in Air Pollution

The environmental quality in general and air quality in particular is strongly influenced by the prevailing climatic conditions. (Liptak 1974; Berry, *et. al.*, 1974, Koren 1980, Sundaresan 1980). The level of air pollution derived for the four seasons at the metropolitan system's level revealed that the metropolitan cities are highly polluted in winter and least polluted in autumn. The analysis further demonstrated: (i) The decreasing trend of air pollution levels of the metropolitan system over the seasons, and (ii) The increase and decrease in air pollution levels of the metropolitan system respectively in winter, spring, summer and autumn over the years (Table 10).

TABLE 10 AIR POLLUTION LEVELS OF THE METROPOLITAN SYSTEM BY SEASONS : INDIAN METROPOLITAN SYSTEM

Seasons	Air Pollution Level	
	1978	1979
Winter (December, January, February)	7.81	9.07
Spring (March, April, May)	7.53	8.66
Summer (June, July, August)	7.42	7.34
Autumn (September, October, November)	7.23	7.12

The seasonal analysis of air pollution at the individual city level identified that : (i) the metropolitan cities are gradually tending towards

poor air quality, (ii) Calcutta as the highest polluted metropolitan city in all the four seasons of the year, and (iii) Jaipur as the least polluted metropolitan city in all the four seasons of the year. These levels are confirmed by 1979 data base also, except some improvement in air quality level of Calcutta in autumn which may be attributed to the local climatic conditions (Table 11).

TABLE 11 AIR POLLUTION LEVELS OF THE METROPOLITAN CITIES BY SEASONS: INDIA

Cities	Winter		Spring		Summer		Autumn		Total	
	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979
Calcutta	2.50	2.67	1.75	1.81	1.75	1.76	1.50	1.59	7.50	7.83
Bombay	1.50	1.83	1.50	1.75	1.33	1.46	1.50	1.82	5.83	6.86
Kanpur	1.34	1.38	1.50	1.55	0.66	1.42	1.26	1.38	4.76	5.63
Hyderabad	0.51	0.86	1.58	1.63	1.42	1.48	1.25	1.34	4.76	5.31
Delhi	0.75	1.17	1.17	1.17	0.75	0.75	0.75	0.75	3.42	3.84
Ahmedabad	0.42	DNA	0.08	DNA	0.50	DNA	1.08	DNA	2.08	DNA
Madras	0.25	0.66	0.25	0.85	0.67	0.90	0.0	0.25	1.17	2.66
Jaipur	0.24	0.50	0.0	0.35	0.16	0.32	0.08	0.21	0.48	1.38

DNA : Data Not Available.

CONCLUSIONS

The metropolitanisation process is gradually degrading the urban environment of the metropolitan cities of India.

The entire metropolitan system is under the very strong influence of the air quality parameters; Suspended Particulate Matter and Dust Fall. The metropolitan cities are prone to a greater incidence of Respiratory Diseases, Bronchitis, Cardiovascular Diseases, Cancer and Tuberculosis.

Population size is an exponent of air quality.

Metropolitan Environment is highly polluted in winter and least polluted in autumn.

Industrial areas of the metropolitan cities are highly polluted and contribute maximum to the general air pollution level. Residential areas of the metropolitan cities are least polluted and contribute minimum to the general pollution level.

Calcutta is the highest polluted, metropolitan city:

- (i) at the overall air pollution level,
- (ii) in all the seasons, and
- (iii) under all the landuse patterns.

Jaipur is the least polluted in all these respects. □

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The Poor in a Semi-Urban City : A Preliminary Analysis of Some Trends

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IT IS increasingly recognised that the urban and semi-urban areas of India are in crisis. Unemployment is chronic, population growth is rapid on account of demographic explosion and influx of population mostly from the bottom rungs of the rural folks in search of a 'promised land'. There is a tremendous pressure on the basic amenities like sanitation, housing, transport, etc. Besides, the natives scorn the sight of outsiders since a part of their civic amenities are diverted to accommodate the newcomers who are also not always welcome to the midst of the privileged few. The poor in the urban settlements, be it natives or outsiders, are thus sandwiched between a helpless neighbour and bleak future in their efforts to eke out a living.

An attempt has been made in this paper to analyse the situation of the poor in a semi-urban city and to trace the causes for the growth of poverty. Primary data is obtained from a sample of a single occupational strata of five hundred rickshaw pullers, considered to be the poorest sections of the urban society, out of about two thousand estimated with the help of a structured schedule. The total population of the semi-urban city is about five lakhs spread over an area of 60 sq. kms. with about 50 per cent literacy. The city consists of three distinct areas; commercial, educational and railway junction. From one end to the other it is about 20 kms. All the important locations were identified and random method was adopted to collect the data. Being a micro study of a particular segment of the poor, it may not afford adequate ground to arrive at concrete generalisations, but yet it will provide an understanding of the trends and offer a few tentative explanations.

It is essential to analyse certain demographic characteristics of the

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sample to appreciate the trends in the study of urban poverty. Caste has been the most important variable in this regard. In the Indian situation caste configuration is the result of several factors—historical, religious, cultural, etc. Each caste group had been identified with a specific function and mobility from one to the other was difficult if not impossible. Further the system not only prescribed a vertical hierarchy but strengthened and invariably defended the division with ruthless fiat. Thus, in the bargain the lowest of the low who happened to be the poorest of the poor had been assigned the menial profession. It is in this context we have to examine the caste identification of the respondents. In our sample, the lowest of the low caste group in the social ladder, the scheduled castes constitute the single largest section with about 44 per cent (see Table 1).

The other stratum of the society which is also a neglected one are the scheduled tribes. With 22 per cent of the sample, they constitute the next larger group of the rickshaw pullers. The SCs and STs thus put together constitute three fourth of the sample. The remaining one third were drawn from the listed backward classes and the Muslims.

There were five from the forward castes who opted for this occupation, i.e., rickshaw pulling as a temporary venture. Since some of them happen to be juvenile delinquents we need not take their presence seriously. Therefore, it is clear that the rickshaw pulling is the 'chosen' profession of the neglected sections of the society.

TABLE 1 CASTEWISE DISTRIBUTION OF THE RESPONDENTS

<i>Sl. No.</i>	<i>Caste</i>	<i>No.</i>	<i>Percentage</i>
1.	Scheduled Castes	224	44
2.	Scheduled Tribes	109	22
3.	Listed Backward Classes	83	17
4.	Muslims	79	16
5.	Forward Castes	5	1
TOTAL		500	100

When we look at the age composition of the respondents we find the largest number from the age group of 21 to 30 (see Table 2). It is pertinent to point out that people of this age group generally try to find their feet in some respectable occupation and settle to an independent living. But unfortunately that does not appear to be the case with our respondents.

Thirty years of age and beyond is a disqualification for any government or private service. Independent vocation is a mirage since rickshaw pulling engages the most active life and leaves them

helpless later. Therefore, all of them continue in this profession whether they like it or not.

TABLE 2 AGE DISTRIBUTION OF THE RESPONDENTS

<i>Sl. No.</i>	<i>Age</i>	<i>No.</i>	<i>Percentage</i>
1.	20 and below	85	17
2.	21—30	252	50
3.	31—40	110	22
4.	41—50	45	9
5.	51 and above	8	2
TOTAL		500	100

A close scrutiny of the 20 and below age group indicates that quite a few of them are engaged in the profession from a very tender age. When the children of comparable age could enjoy all the benefits like education, recreation, etc., the unfortunate ones from our sample had to shoulder onerous responsibilities of earning bread for themselves and their dependents. We also find a few elderly and the old who have been in this occupation.

Thus, there have been no age restrictions in this profession. People from all the age groups resort to this profession, provided they are physically fit.

It is obvious that the poor cannot think of education. This is more evident in the case of the scheduled castes, the scheduled tribes, the Muslims and the listed backward classes. Therefore we find nearly three-fourth illiterates. Only a minuscule minority had studied upto school leaving stage and completed. The SSC certificate holders were from the forward castes and one or two lucky people from the listed backward classes (see Table 3).

TABLE 3 LEVEL OF EDUCATION OF THE RESPONDENTS

<i>Sl. No.</i>	<i>Category</i>	<i>No.</i>	<i>Percentage</i>
1.	Illiterate	324	65
2.	Read and Write	40	8
3.	Primary	101	20
4.	Up to school leaving	27	5
5.	SSC	8	2
TOTAL		500	100

Rural-urban distribution of the respondents presents a disquietening trend (see Table 4). Nearly three-fourths of them migrated from the neighbouring as well as distant rural areas. Almost all of them belonged

either to the scheduled castes or the scheduled tribes. It means due to some reason or the other they were 'pushed' out of their age old locales. The natives consisted of mostly the Muslims and a few from the scheduled castes.

Migration of the poor and the illiterate from the country-side to the urban and the semi-urban centres will lead to several problems, the consequences of which are very difficult to imagine. In the absence of absorption capacity in any gainful employment, the cities will become sanctuaries of exploiters. Slums multiply, vagrants emerge, crime curve goes up, and all other unhealthy tendencies proliferate in the urban areas.

TABLE 4 RURAL-URBAN DISTRIBUTION OF THE RESPONDENTS

Sl. No.	Area	No.	Percentage
1.	Rural	330	66
2.	Urban	170	34
TOTAL		500	100

Having analysed the demographic data, let us begin with a basic question why the respondents had chosen this profession? (see Table 5).

Of all the occupations, rickshaw pulling enjoys lowest priority in any society because the job demands continuous physical stamina to negotiate the vehicle in congested localities, tortuous lanes, zig zag by-lanes, pot holes, deceptive ditches, steep roads and uneven surfaces. Brute physical force is a *sine qua non* since a single helpless human being has to literally carry normally two but quite often more than two human beings along with a heavy load of luggage and other paraphernalia heaped on it. It is perhaps not an exaggeration to describe the rickshaw pullers as the two legged 'animals' who pull the vehicle to the described destination of the customer. Under normal conditions the helpless express a positive hatred and try all possible alternate avenues to avoid but settle for this hazardous and most wretched occupation because of numerous compelling constraints.

In our sample an overwhelming majority have taken to rickshaw pulling because of sheer lack of alternative occupation. This is explicit in their answers which were spontaneous and prompt. Several of them stated that for survival they had to take up this work. In simple terms it shows the miserable state of unemployment situation in the state. However, in recent years rickshaw pulling is also euphemistically called 'employment' and the rickshaw puller comes under the 'noble' profession, known as 'Self-Employment Scheme'. It is sad to note that rickshaw pulling is still primitive in several states. On a two wheeler the

TABLE 5 REASONS FOR TAKING TO RICKSHAW PULLING
AS A PROFESSION

<i>Sl. No.</i>	<i>Reasons</i>	<i>No.</i>	<i>Percentage</i>
1.	No alternate occupation	350	70
2.	Low wages	125	25
3.	Debts	65	13
4.	Famine/Drought	25	5
5.	Uneconomic landholdings	15	3
6.	Family disputes	15	3
7.	Temptation to earn more	10	2
8.	Off season	10	2
9.	Better than being a coolie	10	2
10.	Doing it from childhood	10	2

passengers are drawn by the puller on foot while in a few states the two wheeler is replaced by a three wheeled bicycle with a suitable provision for a pair of pedals so that it can be moved by pushing the pedals with feet. Even after more than three and a half decades of freedom the status of these miserable people did not attract the attention of the Apostle of the poor. Unless the vehicle is subject to improvement the slogan of 'Self-Employment' would remain a mere rhetoric.

Mechanisation of cultivation through tractors, threshers, weeders, etc., often the result and consequence of Green Revolution, has steadily rendered a large majority of farm labour as surplus. Whenever manpower is required, it is met by the barest minimum number of workers and that too on an ad hoc and part-time basis.

New schemes like social forestry have also contributed their share since they do not require continuous tending of plants for so long as four to six years. Casurina, Eucalyptus, Kubabul plantations are grown in large areas converting some times the rich paddy growing plots by the enterprising cultivators. In fact, the managements of paper, pulp and rayon factories provide attractive incentives like bank credit at a very reasonable rate of interest and purchase the raw material at the door of the cultivator without any difficulty. Furthermore, in several states, the forest departments generously supply the seedlings free of cost to the 'progressive' farmers. These schemes are fast catching up because of ready market, without investment, free supply of seedlings, non-application of fertilizers and pesticides and above all, encouraging returns. All this has resulted in the non-utilisation of agriculture labour force in the rural area. As a consequence the displaced have to search for alternative avenues like rickshaw pulling to eke out their living.

Low wages has been the major cause for a sizeable percentage to

opt for this occupation.¹ Whether it was on the farm front or in the urban agglomerations, non-observance of Minimum Wages Act has led to dislocation of work for several young and old alike. There have been a number of studies indicating the failure on the part of governments in enforcing the provisions of Minimum Wages Act. The Ministry of Labour and Employment and Rehabilitation in its report stated that the Act *had remained a dead letter in every state* as far as the landless labourers were concerned.² Minimum Wages Act is a misnomer in the villages. The poor and the dispossessed do not know for certain even the existence of such a statute. Even if the people are aware, none takes it seriously because of their helplessness. Wherever the farm labour organisations emerged they have always been painted with red tar and dubbed as undesirable institutions if not as anti-state activity because of the element of militance and necessary measures initiated by the state machinery to nip them in the bud. All possible efforts are made to root them out in the name of law and order so that they would not sprout once again. All the talk and brave statements, but without teeth. The study teams and Planning Commission suggesting for the establishment of organisations for the poor to get their legitimate share in the cake remain mere platitudes in the cupboards of the air conditioned rooms. Perhaps if taken seriously and exposed, the recommendations might gather red colour and become an embarrassment to many. Thus, in the absence of reasonable wages, effective organisations and lack of alternative occupations, the poor especially those from the rural areas have no option except to migrate to the distant greener urban pastures which are mostly imaginary with a fond hope to make a better living.

The situation of the poor in the semi-urban centres is no better. There has been open defiance of the Minimum Wages Act by the trade.³ The poor accept lowest of the low wages on a temporary basis in various occupations like, stone crushing, leather tanning, rice and oil mills, hotel industry, etc. These occupations reported highest percentage of labour turn over. Thus due to temporary shelter, low wages in the highly profit making units by unresponsive managements, the poor become willing victims of the ruthless exploiters and finally leave the work place after some time in disgust in search of alternate job. Several of the drop outs turned to rickshaw pulling. A few young men took to

¹Studies on wages in the rural areas have proved that there has been no improvement in the real wages over a period of time. See for example, G. Parthasarathy and K. Adishesu, "Real Wages of Agricultural Labour in Andhra Pradesh: Two Decades of Stagnation", *Economic and Political Weekly*, Vol. XVII, No. 31, July 31, 1982.

²Report of the National Commission on Labour, New Delhi, 1969, p. 400.

³Timir Basu, "Who's Afraid of Minimum Wages?", *Economic and Political Weekly*, Vol. XVII, No. 42, October 16, 1982, pp. 1680-81.

rickshaw pulling during the nights to avoid the notice of friends and family members during the day time and continued their education in the schools. Some of the respondents stated that for some time they tried their hand in petty business but finally failed to make the grade. Although a few had requisite qualifications to get into government job they did not get because of their inability to grease one's palm at the right place and time. After so much of frustrating experience they landed themselves in the employment of rickshaw pulling.

Debts forced a few to settle to this occupation. Owing to several reasons dictated by custom and tradition from festivals to funerals, the poor tend to borrow money and consumable items from the money lenders and pan brokers and remain bonded almost for the life time. At times, to meet the immediate requirements, their meagre assets are mortgaged or sold away for a song. Among the several instances the pathetic case of a rickshaw puller deserves mention. A Muslim railway licenced porter passed away due to old age leaving behind wife, and unemployed children without any asset. To dispose of the dead corps the family sold away the only asset, the licence token, which would have given an opportunity to earn a living, at a premium and performed the last rites. Having buried the body with the help of the token the family had no option except forcing the eldest child to go for rickshaw pulling.

Cycle rickshaw pulling is not a new phenomenon in the urban and semi-urban areas but it is difficult to trace out the origin of the vehicle in this semi-urban setting.⁴ Because of the typical topography, rapid expansion, establishment of various institutions in and around this town there has been a steady rise in the number of rickshaws over a period of time. With this background in view, the length of service in this profession by the rickshaw pullers is indicated in Table 6. It is obvious from the Table that the new entrants constitute the single largest segment. However, those who have been in the profession for more than fifteen years constitute about one-fifth of the total sample. We have come across a few respondents who migrated to the town at the dawn of independence in search of better opportunities but unfortunately opted for this profession and continue since they could not clear the cob webs of poverty and choose a better occupation.

Furthermore, when we examine the profession of other family members, it is revealing that the occupation of father/brothers/son has been the same to the extent of nearly one-third of the sample (see Table 7).

In this category, there are a few families in which the vehicle is put to optimum utilization by the other family members like father/brothers

⁴Unnayan, however, in his study of rickshaw pullers in Calcutta city traced the origin of its introduction to 1914 (hand rickshaws) and cycle rickshaws to 1930. See for details, Unnayan, *Rickshaws in Calcutta*, Calcutta, 1981.

by engaging it continuously with regular shift system. Thus, rickshaw pulling has become a family tradition and in the course of time the community may acquire the nick name of rickshaw wala.

TABLE 6 HOW LONG HAVE YOU BEEN A RICKSHAW PULLER?

Sl. No.	Years	No.	Percentage
1.	0— 5	205	41
2.	6—10	135	37
3.	11—15	58	12
4.	15 and above	102	20
TOTAL		500	100

TABLE 7 IS THERE ANY OTHER MEMBER OF YOUR FAMILY IN THIS PROFESSION?

Sl. No.	Position	Total	Percentage
1.	No	348	70
2.	Yes		
	(a) Father 22	152	30
	(b) Brother/s 125		
	(c) Son 5		
TOTAL		500	100

Ownership of a cycle rickshaw is a difficult proposition since the cost of the vehicle is prohibitive for an ordinary poor person to possess. Therefore, almost all the rickshaw pullers go for hire system to start with and gradually explore the possibilities of owning it. In our sample, more than three-fourths do not own the vehicle and the remaining one-third are the proud owners of the cycle rickshaw (see Table 8).

TABLE 8 DO YOU OWN THE CYCLE RICKSHAW?

Sl. No.	Ownership	No.	Percentage
1.	Yes	157	31
2.	No	343	69
TOTAL		500	100

Those respondents who do not own the cycle rickshaw managed to get the vehicle on hire from the business men, money lenders, petty traders, cycle shop owners who maintain the vehicles as a subsidiary occupation (see Table 9). However, the owner does not use the vehicle. The primary purpose is to give it on hire and collect the rent from the rickshaw puller.

With the nationalisation of commercial banks, and the introduction

of 'Garibi Hatao' a new thrust has been provided for the uplift of the down trodden. Keeping the above mentioned programme in view, we

TABLE 9 HOW DID YOU ACQUIRE THE CYCLE RICKSHAW?

<i>Sl. No.</i>	<i>Acquired through</i>	<i>No.</i>	<i>Percentage of the total</i>
1.	Commercial Banks	83	53
2.	Own savings	33	21
3.	Brokers, Money lenders and Chits	27	18
4.	Cooperatives	10	6
5.	Philanthropists	2	1
6.	Bondage of son	1	.5
7.	Dowry	1	.5
TOTAL		157	100.00

have elicited information from the proud owners of the vehicle on the source of money to purchase the vehicle. More than 50 per cent have stated that with the help of commercial banks they were able to own the cycle rickshaw. It is a poor performance because the commercial banks have been 'instructed' to make all out efforts in ameliorating the conditions of the people living below the poverty line but the approach of the banks stems more from the government instructions than the enthusiasm of the most of the branch managers.

This is evident from the data provided by the commercial banks at the time of discussion on credit plan and other related problems. On the other hand the banking personnel plead that the money advanced to this sector is hard to recover. Hence they hesitate to go forward with enthusiasm. In any case, for purpose of publicity and propaganda, distribution of cycle rickshaws at the time of the visit of a political dignitary to the town is arranged periodically. This ceremonial ritual is repeated time and again to keep the poor optimistic about their turn in future. Loan from the commercial banks for this sector carries a very low interest rate than from private money lenders, but is much harder to obtain.

About one-fifth of those who possess cycle rickshaw managed to purchase the vehicle from their own savings. The savings have been mostly from their earnings butteressed with some thing from other members of the family. About seventeen per cent purchased their vehicles with the help of money lenders, brokers and chits. The owners realise the harmful effects of this method but in the absence of viable alternative they resorted to the above mentioned sources. There are certain advantages and drawbacks in this method. If the broker/money lender is convinced about the bonafides of the borrower, the

money is advanced even if it is midnight and complete all the rigors of formalities at a later date. Adjustments, rescheduling of payments and all other problems will be accommodated without any discomfiture to the borrower. On the other hand, the rate of interest is heavy and the borrower cannot escape from the eye of the money lender since there will be highly disciplined thugs to keep a watch on the borrower and if necessary do not hesitate to 'teach' a lesson to the delinquent.

The cooperatives did not make any impact in this field. The source of help from the philanthropists is negligible. However, there is a typical case of a rickshaw puller who kept his son in bondage and borrowed money to purchase the vehicle. In another case, the cycle rickshaw was presented by way of dowry.

A simple question is posed to those who do not own the vehicle whether it is easy to get the cycle rickshaw even on hire. An overwhelming majority answered that it is not easy to get the vehicle on hire for eight hours (see Table 10).

TABLE 10 IS IT DIFFICULT TO GET THE CYCLE RICKSHAW?

Sl. No.	Response	No.	Percentage
1.	Yes	258	83
2.	No	58	17
TOTAL		316	100

Nearly 60 per cent approached the owners of the vehicle through friends, relatives, and money lenders (see Table 11). The rest established their bonafides with their presence in the neighbourhood and took the vehicle on hire. In any case, the owners do not come forward spontaneously to help the poor because the appearance, the status of the person who is invariably in rags becomes a stumbling block. The owner always entertains the feeling that the new customer will knock away the vehicle since he is without any means of living. There have been a few stray cases where the *zamanatdar* had to pay the rent and the cost of the repair through his nose because of default of the rickshaw puller.

TABLE 11 HOW DOES HE MANAGE TO GET THE RICKSHAW ON HIRE?

Sl. No.	Through	No.	Percentage
1.	Friends	102	30
2.	Relatives	53	15
3.	Money lenders/Brokers	50	15
4.	Personal rapport	138	40
TOTAL		343	100

Hire charges do not conform to any set pattern but duration is almost fixed for using the vehicle (see Table 12). On an average, an amount of Rupees three is charged for eight hours. There have been cases where the rent is very low since the condition and the appearance of the rickshaw is bad and shabby. If the vehicle is brand new and in tip top condition then the charges are high. Added to this, in the absence of any disciplined organization of the rickshaw pullers, the rents are fixed arbitrarily by the owners. It depends mostly on the relations between the owner and the helpless puller.

TABLE 12 WHAT IS THE RENT PAID DAILY?

<i>Sl. No.</i>	<i>Amount</i>	<i>No.</i>	<i>Percentage</i>
1.	Rs. 2.00	48	14
2.	Rs. 2.50	60	18
3.	Rs. 3.00	150	44
4.	Rs. 3.50	70	20
5.	Rs. 4.00	15	4
TOTAL		343	100

When the slogans of various schemes to help the poor rent the air, the target group was expected to respond enthusiastically but unfortunately, the largest number did not even try to own a cycle rickshaw notwithstanding various schemes being offered. At the same time, attempts were also made by a sizable number to possess the vehicle (see Table 13).

TABLE 13 DID YOU EVER TRY TO OWN A CYCLE RICKSHAW?

<i>Sl. No.</i>	<i>Response</i>	<i>No.</i>	<i>Percentage</i>
1.	Yes	150	44
2.	No	193	56
TOTAL		343	100

The first major stumbling block in their way to own the vehicle has been lack of finances to purchase the rickshaw with ready cash. In fact if they were to be that rich, some of them confided, they would have taken up some other respectable job instead of rickshaw pulling. In any case, they tried but could not succeed. For others, it was a problem to secure sureties with respectable reputation on their behalf to secure loan. Sometimes, even the private money lenders, chit

organisers, brokers insist on sureties. Of course, commercial banks follow and prescribe innumerable conditions, regulations and procedures which require a thoroughly seasoned *pyravikar* to handle the subject.

Those who stated that they have not tried to own the rickshaw, explained various reasons. To a large number, it did not occur that it is possible to possess the vehicle because they thought that they are destined to take it on hire, pay rent regularly and feed the family. The earnings being limited, they are hardly able to make both ends meet. Some of them do not know anybody who could help them in securing a rickshaw either from a money-lender or brokers or commercial banks. The seasonal workers did not venture to own the vehicle because of their uncertain future.

It is a pity to note that a few proud owners have disposed of the vehicle because of the health problems of their kith and kin. In the absence of free medical aid they had no choice except selling away their movable item to pay the bill to the doctor and the medical shop. Yet in some other case it was a problem of marriage which forced them to sell the vehicle. Thus, there have been several reasons for the disposal of the vehicle (Table 14). It shows that a mere possession is no guarantee that it is going to be a permanent asset because of several compulsions.

TABLE 14 IF YES, WHAT HAPPENED?

(A)

Sl. No.	Response	No.	Percentage
1.	Money was not just enough	73	49
2.	Lack of ready surety	41	28
3.	Rules, Regulations are rigid and hence no time for <i>Pyra</i>	9	6
4.	Disposed of due to several reasons	13	8
5.	Waiting for the release of the Bank Loan	14	9
TOTAL		150	100

IF NO, WHY HAVE YOU NOT TRIED?

(B)

Sl. No.	Response	No.	Percentage
1.	Earnings are just enough for living	79	41
2.	Does not know any body	18	9
3.	Seasonal	11	6
4.	No specific reasons	85	44
TOTAL		193	100

CONCLUSION

Poverty in the urban and semi-urban cities is the result of several factors and could be easily identified. Cycle rickshaw pullers are one such poverty stricken segment of the urban society. As an occupation it is considered to be the most undignified and none would prefer it except the helpless and the poorest of the poor. In the absence of gainful employment, lack of productive assets, low wages, debts, etc., the rural illiterate scheduled castes and scheduled tribes were 'pushed out' of rural areas and as a last resort they migrated to the towns and took up this profession to eke out a living. Major portion of their earning were paid to the owners towards hire charges and to pay off loans incurred under the schemes of the government. Although these schemes are undertaken to help the poor to own a vehicle through the cooperatives and the banks, it is a mere drop in the ocean. Unless the government rectifies the distortions in its policy frame the poor will remain where they are and perhaps the number may grow in future. ☐

*Financing of Urban Service : Municipal Government Vs. Specialist Agency**

K. S. R. N. SARMA

WITH THE accelerated urbanisation in the country in the recent years, there has been manifold increase in the demand for various public services such as water supply, public transport in the urban area. However, the municipal bodies are not able to augment the facilities to keep pace with the demands for the same. There has in fact been a deterioration in the service standards. This lacuna has been generally attributed to the organisational weakness of the municipal governments be it in the matter of raising adequate resources or ensuring efficient-service delivery as such. It is contended that the urban communities have sufficient economic capacity to pay fully for their public services not only during the operation and maintenance phase but even for the capital augmentation for the future. The urban local bodies are generally aware of this capacity of the client citizens but are disinclined to bear the odium of levying and collecting the full charge apparently for short term (political) considerations.¹ The expectation that the higher level governments would come forward to share the municipal governments' responsibilities for the service development not only with the provision of planning and technical expertise but also with financial subsidies, has only helped to slow down the progress. The key to get over the impasse, therefore, lies in the setting up of specialist agencies empowered to exploit fully the paying potential of the client groups and manage the service operations purely on business line.² The argument appears to be fairly sound and even the official commissions have been among its

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¹Report on Seminar on Financing and Management of Water and Sewerage Works—Proceedings and Recommendations, New Delhi, Government of India, Ministry of Health, 1964, p. 3.

²Ibid.

subscribers. In many a case where the specialist agency came to be constituted in recent year for provision of urban services such as for land development, housing, electric supply, public transport, the above has been the major line of reasoning. But an aspect which does not seem to have been adequately inquired into is whether the creation of a specialist agency is necessary and by itself sufficient enough reform for the accentuation of the development objectives in respect of the service concerned. Such an enquiry is in order for the identification of the relevant issues and act on the reforms accordingly. Otherwise there is an apprehension that the present trend of creating specialist agencies might one day completely annihilate the very institution of local self-government. Following is an attempt to fill-in some of the information gaps in above respect largely based on the experiences in the field of urban water supply.

The demand for organisational reforms in the particular case of water supply and sewerage services could be traced back to the reports of the Bhore Committee (1946)³ and the Environmental Hygiene Committee (1949)⁴ which expressed serious reservations about the way the services were handled by the municipal bodies. A high level seminar on Financing and Management of Water Supply and Sewerage Works organised by the Union Ministry of Health in collaboration with WHO in 1964 was very forthright in recommending the constitution of autonomous water supply and sewerage boards at the states level and entrusting them the responsibilities both for capital augmentation as well as operation and maintenance (of all water works in their respective states).⁵ It claimed that the setting up of such boards would help to have the advantages of "(a) an increased efficiency resulting from financial autonomy, (b) improved ability to raise capital with confidence, (c) better opportunities for small municipalities grouped together to finance and operate their schemes on a business like footing, (d) the economies involved in a common source of water where it is made to serve several undertakings, (e) a better and fuller realisation of water revenues when this duty is divorced from local politics, (f) economies possible by pooling technical and administrative staff to serve a number of municipalities, and (g) opportunities for equalising the rates in every region".⁶

³*Report of the Health Survey and Development Committee* (Chairman: Joseph Bhore), Volume II, *Recommendations*, New Delhi, Manager Publications, Government of India, 1946, p. 250.

⁴*Report of the Environmental Hygiene Committee*, New Delhi, Government of India, Ministry of Health, 1949, pp. 125-35.

⁵*Report on Seminar on Financing and Management of Water and Sewerage Works*, op. cit., p. 4.

⁶*Ibid.*

As a follow-up of the above recommendation of the seminar, water supply and sewerage boards came to be set up in a number of states. A factor which seems to have added impetus to the process is the World Bank's insistence on such reform for extending its financial assistance for major water supply schemes. The organisational reforms effected, however, differ considerably in the matters of the powers of the boards, area of jurisdiction, the extent of functional responsibility, etc. To cite a few examples, we have the Bangalore Water Supply and Sewerage Board, which is one among the first to be set up in the year 1964, has jurisdiction limited only to the Bangalore city. A separate board, Karnataka Water Supply and Drainage Board, has been constituted in the year 1975 with jurisdiction extending all over the state of Karnataka excluding the Bangalore city. While the former has responsibility both for capital augmentation as well as for operation of the distribution services, the latter's responsibility is largely limited to the planning and execution of capital works on behalf of various municipal bodies. It has undertaken operational responsibilities in respect of only eleven urban water supply schemes. Similar arrangements exist in the state of Tamil Nadu. A state level board, viz, the Tamil Nadu Water Supply and Drainage Board has responsibilities largely confined to the planning and execution of water works both in the urban and rural centres excluding the Madras Metropolitan area. In the case of latter a separate body, the Madras Metropolitan Water Authority, looks after both the capital augmentation as well as the distribution and maintenance in Madras city as well as in other municipalities and panchayats falling in the metropolitan jurisdiction. In the Calcutta Metropolitan area, a single water supply and sewerage authority has the functional responsibilities extending over all the constituent 32 municipal bodies.

In the case of Bombay, the water supply functions in Greater Bombay continue to be the responsibility of the Municipal Corporation but in the New Bombay area, they are being looked after by the State Water Supply and Sewerage Board. In Uttar Pradesh, a state level agency, viz., 'Jal Nigam' looks after the planning and execution of capital works all over the state. In addition, seven autonomous agencies, viz., Jal Samsthans have been set up to manage the operation and maintenance of water supply works in the five major cities (KAVAL) of the state and also in two special areas. Though the organisational patterns differ considerably, a feature to be noticed in good number of cases is that the state boards have, by and large, confined their functions to the planning and execution of capital works and the responsibility in respect of the management of service distribution networks continue to vest with the municipal bodies except in a few metropolitan cities where separate autonomous water authorities have been constituted.

Though the autonomous water boards have been in operation for

quite some time, no serious attempt seems to have been made to empirically verify the claims made in this regard. It is true that there are certain genuine methodological difficulties involved in mounting such studies. First, there are the problems in choosing the appropriate indicators to measure organisational efficiency. Secondly, there are problems pertaining to the use of cross section or time series data and elimination of the extraneous influences on account of factors such as the differences in the clients' composition, variation in the sources of water, topography. The third and major hurdle is, of course, the paucity of data. Published data is very meagre and hardly adequate to undertake the required analysis. But these difficulties need not deter either the central or the state government concerned to take the initiative in mounting special studies to review the situation. Pending detailed studies, some broad deductions from the readily available data are as under.

First, we may take up the claim about the ability of the water boards to mobilise the required capital funds through floating of debentures, public deposits, etc. It is common knowledge that the Reserve Bank of India annually fixes the quotas in respect of the borrowings that the Central and state governments could effect from the capital market. The borrowings by various departments or undertakings have to be accommodated within quota limits assigned to their respective governments. Such being the case, it would be futile to expect a water board to get a favourable treatment from its state government in the form of enlarged borrowing slots in preference over the capital funds requirements of the more important sectors such as irrigation, industry, etc. As regards the deposits from the commercial or private sources, the terms that a water board could reasonably offer in the matters of interest rate, periodicity of repayment, etc., might not be attractive enough for large inflow of funds. To cite the experience of a board, we have the case of the Karnataka Water Supply and Drainage Board which during the ten years of its operation (1975-85) executed works of the order of Rs 62 crores, out of which the funds that it mobilised through floating of debentures were just Rs. 4.5 crores, i.e., 7.5 per cent of the total. The rest of the funds accrued to the board by way of deposits for works from the various municipal bodies or through loans raised on their behalf.⁷

The second is the claim about the economies of scale. Since a state board operates over a large jurisdictions it might be possible for it to

⁷The Data presented in the Appendix of the Paper by R. Chikkanna, "Working of Karnataka Urban Water Supply and Drainage Board, with special reference to Financial Management", presented at the *Workshop in Urban Finance* organised by the National Institute of Public Finance and Policy, at New Delhi, May 6-8, 1985.

have the advantages in the matters of recruitment of competent staff, in planning, bulk purchase of equipments, securing the technical consultancies, etc. But the same cannot be said for sure in the matter of cost savings from the operation and maintenance in general. The expectation that the cost economies could be effected through use of common sources of water, laying of contiguous service networks, etc., are not just feasible in view of the intermittent dispersal of the urban settlements.

Now we come to the major claim, that a specialist agency would be in a better position to periodically revise the water charges as per the variations in the cost of production and conduct the operations in business like fashion unfettered by the interference by the local municipal councillors. Again we may cite the experience of the Karnataka Water Supply and Drainage Board. As already stated, the board is directly administering 11 water schemes at present and the annual revenue loss on that account are reported to be Rs. 1.5 crores.⁸ Obviously the board has not been in a position to levy and collect the charges on full cost recovery basis. In contrast we have the example of the Bombay Municipal Corporation which has in the recent past introduced two entirely new levels, viz., the Water Benefit Tax and Sewerage Benefit Tax to partly finance its World Bank aided water supply schemes. It is reported that the Corporation has been able to mobilise from its internal sources funds to nearly 70 per cent of the total costs of the schemes in question.⁹ Thus, it is not fair to perceive the role of the political executives always in the negative direction. The people's representatives might be making some positive contributions as well. In the context of the present discussions the contributions from a study carried out by Harry M. Kitchen in Canada in 1975 may be of interest.¹⁰ It is observed that "the cost of supplying water through a separate water utilities commission was significantly higher than the costs of supply by a department directly under City Council". An analysis of the factors causing the cost differentials indicated that the higher costs under the separate commission seems to be the result of weaker pressures towards public accountability and inability to benefit from circular integration with other functions performed by municipal council. Furthermore, the cost differentials were not fully justified by

⁸R. Chikkanna, *op. cit.*, p. 7.

⁹R.S. Pednekar, "Financing of Water Supply: A Case Study of Bombay", a paper presented at the *National Seminar on Financing Urban Development*, organised by the Indian Institute of Public Administration, New Delhi, February 4-5, 1985.

¹⁰Harry M. Kitchen "Some Organisational Implications of Providing an Urban Service: The Case of Water", *Canadian Public Administration*, Volume 18, No. 2 (Summer 1975), p. 297.

a higher quality of service from commission. Finally, the fragmentation of authority that occurs in the case of providing water through a separate utilities commission is unnecessary and unwise as there is little that such authorities can do which could not be done by a regular unit of a (municipal) government. It is not to suggest that all these observations equally hold true in the Indian context. To have a clear picture in that regard there is a need for detailed investigations as demanded earlier. An observation that one could, however, safely make on the basis of foregoing is that the organisational changes effected have not been of much help in securing the needed improvements in the financing of water supply and sewerage developments. A fresh look at the basic premises on which the approach to the financing of urban water supply and sanitation programmes has been built, therefore, seems to be imperative.

The premise that the urban communities have sufficient economic capacity to pay fully for their public services is a valid one, but only at the aggregate level. To deduce from it that the full cost recoveries could be had from the individual client citizens in the form of direct service charges, only displays an insufficient understanding of the economic disparities existing among the urban communities, the wider divergencies they are likely to cause in the service expectations, the different socio and economic objectives that need to be ensured through the provision of the public services, etc. In the case of water supply, the different groups might be having varying types of demands to meet their biological, household, economic, and community needs. The Financial tools that are bestowed to the local service agencies, viz., the quantity related price charge or the service specific property tax are just not the type that could be easily moulded to meet the intricate variations in the above various demand fronts and yet help the realisation of the objective of financial self sufficiency. The best fiscal tools to tap the urban prosperity are with the central and state governments and one that are provided to the lower level agencies are largely residue type. The problem of revenue losses in the water supply and sewerage operations may not, therefore, be regarded entirely as one of 'management' at the local level. As pointed out earlier, even in those cases where the management of the operations are entirely with the autonomous water authorities, the revenue losses could not be avoided. Similarly, it may not be fair to expect the municipal bodies to cover the losses on the water supply account from their general tax revenues. The municipal tax sources are not that elastic to enable them to meet their fast raising expenditure commitments including that in respect of water supply. The main stay of municipal finances in most states is the property tax. But its revenue yielding potential has been seriously crippled on account of two recent developments. The first is the

Supreme Court's Judgement in the case of Diwan Daulat Rai Kapoor vs. NDMC extending the logic of the Rent Control Legislation to the assessment of the values for the property taxation purposes. The second is the the central policy decision to reserve nearly eighty per cent of new housing under the various public housing schemes for the low income and economically weaker sections of the population, and most likely they might not come under the property tax. The other important municipal tax is octroi. There are good prospects of making it very elastic with the adoption of ad valorem rates. But that tax is not permitted to be levied in a good number of states and in others, it is slated for early abolition under heavy pressure from the transporters' lobby.

From the foregoing it is apparent that urgent steps are needed to bridge the revenue gaps at the municipal level. One of the suggestions recently made to improve the financing in respect of water supply and sanitation is to pattern the reforms according to the model now in vogue in Brazil.¹¹ The salient features of the Brazilian Model—the National Plan for Basic Sanitation (PLANASA) are: (1) state level water supply and sanitation corporations look after both development and operation of the service facilities in all the areas in their respective states. (2) the state governments earmark 2 to 5 per cent of their total revenues to be passed on to the above corporations in the form of grants to meet fifty per cent of their development expenditure requirements, (3) the rest fifty per cent of the development expenditure requirements are met with loans extended by the National Housing Bank (NHB), a central specialist financial institution. (4) The NHB charges different rates of interest from different state water supply and sanitation corporation as per the economic status of the state concerned. Many difficulties could be anticipated in the implementation of the suggestion. The foremost is whether the state government would agree to set aside the indicated percentage of the revenues to be provided as grants for the development in one particular sector. The second is whether an autonomous corporation could take over the service networks in all the areas and manage them as financially viable propositions. The experience so far does not lend much support in this regard.

The course of reform that seems to be most advisable in respect of the matter under discussion is to strengthen the revenue base of the municipal bodies through tax assignments from the central and state government. The Planning Commission's Task Force Group on Financing Urban Development has recommended that ten per cent of

¹¹S.T. Veera Raghavan, "New Strategies for Financing Urban Development in India"—a paper presented at the *National Seminar on Financing Urban Development in India* organised by the Indian Institute of Public Administration, New Delhi, February 4-5, 1985.

the central corporate tax revenues and an equal percentage from the state sales tax revenue should be set aside to be passed on to the urban local bodies to help them to meet their development expenditure requirements.¹² In order to encourage the local revenue effort, the Task Force Group also suggested incorporation of suitable incentives built into the formulae that may be evolved in respect of the devolutions to be effected to the municipal bodies from the higher levels of government.¹³ The system of tax assignment on formal footing is preferred because the assignments are the next best substitute to the local bodies' own tax sources. It would be a better arrangement to encourage the local initiative in planning and in the enforcement of financial discipline than a grants system based primarily on 'revenue gap filling' approach. Moreover, the studies by J.F. Linn have indicated that wherever a municipal body's mobilisation have been considerable from its own sources, the standard of services provided by it has generally been higher.¹⁴ Therefore, if one would like to see improvement in the standards of the various public services, it is better to vest elastic sources of revenue to the local agencies rather than an ad hoc arrangement of financial 'doles'.

In conclusion, it may be stated that from the available evidence the creation of special purpose functional agencies have not contributed much either by way of mobilisation of finances or improving the service efficiency. If it is agreed that local self-government is necessary and a desirable objective by itself, then the constitution of the special purpose agencies would amount to be a retrograde step—even if it is intended to pursue service excellence in that particular area. The reform efforts should rightly be directed to strengthen the local self-government institution rather to weaken it. ".....when the choice lies between an institution and a function, it would betray an unfortunate lack of foresight if the institution is sought to be sacrificed at the altar of a specific function".¹⁵

The solution to efficient local services lies not in multiplication of agencies on a functional basis but in allocating resources to the municipal governments on the basis of responsibilities vesting with them.

¹²Planning Commission, Task Force on Housing and Urban Development Report I—*Financing of Urban Development*, New Delhi, Planning Commission, 1980, p. 59.

¹³*Ibid.*

¹⁴Johannes F. Linn, "Urban Finances in Development Countries", *Report Nos. 80-85*, Washington, The World Bank Economic Development Urban and Regional Economics Division, 1980, p. 21.

¹⁵Mohit Bhattacharya, "A Special Agency for Water Supply—Pros and Cons", a paper presented in a *Seminar on Problems of Management and Financing of Water Supply*, Lucknow University, Lucknow, February 1969 (mimeo), p. 14.

A Note on Urbanisation Pattern in Gujarat

MADHUKANT PATEL*

THE DEVELOPING countries of Asia, Africa and Latin America after World War II have shown predominant tendency towards urbanisation. This can be related perhaps with rapid industrialisation in these countries. India is ranked 91st among all countries in terms of the level of urbanisation. Thus India on all counts seems to be predominantly rural, since its major portion of population lives in rural areas. However, it must be noted that India is ranked third after USA and USSR as country having large urban population.¹

Though India as such is not highly urbanised country as a whole, but due to recent rise of industrialisation and rising of population, the rate of urbanisation is also picking up in the country. There is an observed variation in the level of urbanisation across the different states of India. Gujarat being one of the highly industrialised states in the country, it will be interesting to study the process and pattern of urbanisation in Gujarat.

Position of Gujarat in India

According to the 1981 Census, the level of urbanisation varies across the states. The lowest level of urbanisation is found in Himachal Pradesh (7.6%) and its highest level in Maharashtra (35%). Gujarat ranks third in terms of level of urbanisation (31.1%) after Maharashtra and Tamil Nadu (Table 1). The level of urbanisation in Gujarat is much higher compared to other states, but the process of urbanisation has been very slow. As it can be seen from the Table that the rate of growth of urban population is estimated at 3.5 per cent per annum

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¹World Bank Staff Working Paper No. 209.

(1971-81), and it is ranked almost at the bottom (11th among 15 major states). The growth of urban population was estimated to be 1.9 per cent per annum during 1951-61 and it increased to 3.5 per cent per annum during 1961-71 and remained stagnant during 1971-81. The rate of growth of urban population during 1951 to 1981 for Gujarat was estimated to be 3.0 per cent per annum whereas the corresponding rate was 3.2 per cent for the country as a whole.

TABLE 1 PERCENTAGE SHARE OF URBAN POPULATION TO TOTAL POPULATION AND ANNUAL GROWTH RATE OF URBAN POPULATION

States	Percentage of urban population to total population				Annual growth rate of urban population			
	1951	1961	1971	1981	1951-61	1961-71	1971-81	1951-81
<i>Major States</i>								
Maharashtra	28.7	28.2	31.2	35.0	2.0	3.5	3.4	2.9
Tamil Nadu	24.4	26.7	30.3	33.0	2.1	3.3	2.5	2.6
Gujarat	27.2	25.8	28.1	31.1	1.9	3.5	3.5	3.0
Karnataka	23.0	22.3	24.3	28.9	1.7	3.1	4.2	3.0
Punjab	33.5	23.1	23.7	27.7	-1.8	2.3	3.8	1.4
West Bengal	23.9	24.5	26.7	26.5	3.1	2.5	2.8	2.8
Andhra Pradesh	17.4	17.4	19.3	23.3	1.5	3.0	4.0	2.8
Haryana	—	17.2	17.7	21.9	—	3.1	4.8	3.9
Rajasthan	18.5	16.3	17.3	20.9	1.1	3.3	4.7	3.0
Madhya Pradesh	12.0	14.3	16.3	20.3	4.0	3.9	4.6	4.1
Kerala	13.5	15.1	16.2	18.8	3.4	3.1	3.2	3.3
Uttar Pradesh	13.6	12.9	14.0	18.0	1.0	2.7	4.8	2.8
Bihar	6.8	8.4	10.0	12.5	4.1	3.7	4.5	4.1
Orissa	4.1	6.3	8.4	11.8	6.4	5.2	5.4	5.7
Assam	4.6	7.5	8.8	10.3	8.3	3.8	4.4	5.5
<i>Other States</i>								
Manipur	—	8.7	13.2	26.4	—	7.6	10.2	8.9
Jammu & Kashmir	14.0	16.7	18.6	21.0	2.6	3.8	3.9	3.4
Meghalaya	—	—	14.5	18.0	—	—	5.1	5.1
Sikkim	—	—	9.3	16.2	—	—	11.6	11.6
Nagaland	—	5.2	10.3	15.5	—	10.4	8.9	9.7
Tripura	—	9.0	10.4	11.0	—	4.6	3.4	4.0
Himachal Pradesh	—	6.3	7.0	7.6	—	3.1	3.0	3.1
All India	17.3	18.0	19.9	23.3	3.4	3.3	3.9	3.2

SOURCE : *Basic Statistics relating to the Indian Economy*, Vol. 2, September 1984, Table. 1.13.

It may be noted that during the last two decades, viz., 1961-71 and 1971-81 Gujarat's performance was relatively better compared to Maharashtra and Tamil Nadu, as both these states experienced decline

in growth rate of urban population. For instance Maharashtra and Tamil Nadu had an annual growth rate of urban population at 3.5 per cent, 3.3 per cent per annum in 1961-71 and 3.4 per cent and 2.5 per cent per annum in 1971-81 respectively.

It can be seen from Table 2 that during 1951-61 population increase in rural Gujarat was 29.4 per cent and in the urban Gujarat it was 20.1 per cent. The trend was reversed during the last two decades as the urban population increased faster than rural population. It was due to new definition of urban areas.* (The definition of urban area was not similar in previous census till 1961. The new definition is adopted from 1961 census). This may be attributed to the extension in the geographical boundaries of urban areas and rural-urban migration.

TABLE 2 PERCENTAGE INCREASE OF POPULATION IN GUJARAT

Year	Population increase		
	Total	Rural	Urban
1951-61	26.9	29.4	20.1
1961-71	29.7	25.4	41.0
1971-81	27.7	22.3	41.1
1951-81	109.6	98.4	139.4

SOURCE : *Basic Statistics relating to Indian Economy*, Vol. 2, September 1984, Table 1.1 and 1.13.

THE CHARACTERISTICS OF URBAN GROWTH (1970-81)

The growth of urbanisation is constantly going up since last two decades. Therefore it is necessary to understand the urban growth. It is useful to identify how far the observed urban growth is attributable to.²

- (i) The reclassification of localities from rural to urban or urban to rural;

*The 1961 census adopted more rigorous definition of town for the country as a whole than the earlier censuses, but the criterion of the form of local self-government was retained and other urban places were required to meet the three empirical tests of :

- minimum population of 5,000;
- a density of not less than 1,000 persons per sq. mile (or 400 persons per sq. km.); and
- the predominance of non-agricultural economic activities (75% or more of the total male worker should be engaged in non-agricultural activities).

*Pravin Visaria, Devendra Kothari and B.L. Kumar, "Urbanization and Settlement Pattern in Gujarat", *Conference Paper*, Gujarat Economic Association, Vallabh Vidya Nagar, February 1985.

- (ii) An extension of the boundaries of urban localities;
- (iii) Natural increase; and
- (iv) Net migration.

Here we are trying to study characteristics of urban growth. The rough estimates for last two Census 1971 and 1981 are presented in Table 3. The reclassification of localities as urban and the annexation of rural localities with adjoining towns were estimated to be 14.61 per cent of the total urban growth during last decade. The natural increase of the urban population during 1971-81 was estimated to be 57 per cent of the urban growth, while the residual balance (43%) of urban growth reflects net migration (and its natural increase) as well as the effect of extension of boundaries.³

TABLE 3 CHARACTERISTICS OF URBAN GROWTH, 1971-81

<i>Characteristics</i>	<i>Number('000)</i>	<i>Percentage</i>
Total Inter census Growth 1971-81	3149	100.00
Natural increase	1806	57.35
Population of rural localities reclassified as towns 1981 (46 new towns)	404	12.83
Population of rural localities that have been annexed to urban areas (new out growth)	56	1.78
Net migration, the natural increase among migrations and the effect of extension of boundaries	883	28.04

NOTE : This figure represents the difference between 1971 urban population (74,97,000) adjusted downwards to exclude the population of towns declassified at the time of the 1981 Census (44,000) and the urban population enumerated in the latter census (1,026, 2,000).

SOURCE : Pravin Visaria, Devendra Kothri and B.L. Kumar "Urbanisation and Settlement Pattern in Gujarat", *Conference Paper*, Gujarat Economic Association, February 1985, Table 11.

The urban area of Gujarat was 4614 sq. kms. in 1971. This increased to 4765 sq. kms. in 1981. Most of this increase is presumably attributable to the new town. Thus the extension of boundaries seems to have been a negligible factor in urban growth during 1971-81. Most of the urban growth of 1971-81, may be related to industrialisation and recent development.

The migration is also an important characteristic for the urban growth of Gujarat. In Table 4 we have presented the data of life time

³Pravin Visaria, Devendra Kothari and B.L. Kumar: "Urbanisation and Settlement Pattern in Gujarat", *Conference Paper*, Gujarat Economic Association, Vallabh Vidya Nagar, February, 1985.

migration to urban Gujarat according to rural-urban for the last three censuses. The net migration between rural and urban areas within the state is estimated to be 15.27 per cent of the urban population of Gujarat in 1961, but its share declined to 12.70 per cent in 1981. On the other hand, net inter-state migration to urban Gujarat has accelerated because the in-migration increased constantly and there was slow rate of out-migration from urban Gujarat to other states. However, the overall share of net migration in the urban population of Gujarat has remained unchanged at 16 per cent according to 1961, 1971 and 1981 censuses.

TABLE 4 LIFE TIME NET MIGRATION TO URBAN AREA OF GUJARAT
1961, 1971 AND 1981

Type of Migration	Percentage of total urban population		
	1961	1971	1981
<i>A. Inter-State Migration</i>			
1. Rural-Urban Migrants	20.76	19.67	19.22
2. Urban-Rural Migrants	5.49	6.78	6.52
3. Net Migration (2-1)	15.27	12.89	12.70
<i>B. Inter-State Migration</i>			
1. In Migrants	6.88	7.40	7.98
2. Out Migrants	6.56	4.80	4.16
3. Net Migration (2-1)	0.32	2.60	3.82
C. Overall Net Migration (A+B)	15.99	15.49	16.52

SOURCE: Pravin Visaria and Devendra Kothari, *Migration in Gujarat, An Analysis of Census Data*, Sardar Patel Institute of Economic and Social Research, Ahmedabad 1982, Table 5.3.

PATTERN OF URBANISATION

It is possible to divide the state among various regions on geographical base. These regions are South Gujarat, Central Gujarat, North Gujarat, Saurashtra and Kutch. In Table 5 we have presented some demographic characteristics of the regions and the districts therein. It may be pointed out that there is a variation in the level of urbanisation and growth rate of urbanisation not only across the regions but also over time. The highest share of urban population was observed in the Central Gujarat followed by Saurashtra and South Gujarat during last three decades. While the lowest level was observed in north Gujarat. It may also be observed that Ahmedabad district (in Central Gujarat) is highly urbanised in the state since more than 70 per cent of

its population lives in the urban areas of the district. The lowest proportion was estimated in the Banaskantha district (8.6%) and Sabarkantha (9.9%) districts both in North Gujarat. The level of urbanisation increased in 17 districts as well as in all regions during 1971-81. However, this proportion declined in two districts only, viz., Banaskantha and Panchmahals of North Gujarat. The possible reasons that could be extended for such a trend of these two districts are: (a) lack of industrialisation; (b) unemployment; (c) lack of agricultural activities; and (d) poorness which might have prompted the people of these two districts to emigrate to other districts of the state.

Growth Rate of Urban Population

During last two decades, the growth rate of population is found to be higher in urban area than the rural areas of all the regions as well as all the districts (except Banaskantha and Panchmahals districts—See Table 3) of Gujarat. It may be noted that the rate of growth of urban population is found to be higher in southern region and central regions than the state as a whole. The rate of growth was also higher in the districts where big cities are located, e.g., Ahmedabad.

We can see at district level during 1971-81 that the highest rate of growth of urban population is observed in Gandhinagar district (10% p.a.) followed by Surat district (5.9% p.a.) and the lowest in Banaskantha district (1.8% p.a.) and Panchmahals district (2.2% p.a.). During 1961-1981 period the rate of growth of urban population in Sabarkantha, Gandhinagar, Ahmedabad, Vadodara and Valsad districts is higher than the state as a whole.

Density of Urban Population

In order to understand the pattern of urbanisation, it is necessary also to study the density of urban population. As shown in Table 3, the density of urban population has declined substantially from 2,799 person per sq. km. in 1961 to 1924 person per sq. km. in 1971 in urban Gujarat. A similar trend was observed in all the regions of the state. However, the significant increase was in 1971-81 at the state level as well as at the regional level.* As per 1981 Census the central region has the highest density (3528 person per sq. km.) which is higher than the state level, followed by southern region (3827 person per sq. km.) and the lowest density in Kutch (824 person per sq. km.) and Saurashtra region (1386 person per sq. km.). At the district level, Ahmedabad, Rajkot, Panchmahals and Southern districts have higher urban density than the other districts and the state as a whole. The highest urban

*The area of urban Gujarat is reported 1900 sq. km. in 1961; it more than doubled in 1971 (4614 sq. km.) and it just increased marginally in 1981 (4765 sq. km.).

density was observed in Surat district (5838 person per sq. km.) followed by Ahmedabad district and the lowest in Surendranagar district (769 person per sq. km.).

TABLE 5 PERCENTAGE SHARE OF URBAN POPULATION TO TOTAL POPULATION, GROWTH RATE OF URBAN POPULATION AND DENSITY OF URBAN POPULATION BY DISTRICTS AND BY REGIONS IN GUJARAT

Districts/Regions	Percentage share of Urban population to total population			Annual growth rate of population 1961-72			
	1961	1971	1981	Total	Rural	Urban	Total
Jamnagar	35.6	35.3	37.5	3.0	3.1	2.9	2.3
Rajkot	38.7	38.4	42.0	3.0	3.0	2.9	2.6
Surendranagar	28.0	27.0	28.7	2.5	2.6	2.1	2.0
Bhavnagar	31.5	32.0	33.3	2.3	2.2	2.5	2.9
Amreli	21.3	19.9	20.4	2.4	2.6	1.7	2.4
Junagadh	28.2	29.3	30.5	2.9	2.7	3.2	2.4
<i>Saurashtra Region</i>	31.3	31.3	33.1	2.7	2.7	2.7	2.4
<i>Kutch Region</i>	19.4	25.2	26.1	2.0	1.2	4.7	2.1
Banaskantha	7.1	9.4	8.6	2.4	2.1	5.4	2.8
Sabarkantha	6.7	8.8	9.9	2.6	2.3	5.5	2.4
Mehsana	17.8	18.6	20.1	2.2	2.0	2.6	2.0
Panchmahals	10.5	11.2	11.1	2.3	2.2	2.9	2.3
<i>North Region</i>	11.6	12.8	13.3	2.3	2.2	3.4	2.3
Gandhinagar	—	12.0	21.6	—	—	—	3.4
Ahmedabad	60.8	66.9	71.5	2.8	1.1	3.8	2.9
Kheda	19.4	20.0	20.1	2.1	2.1	2.4	2.1
Vadodara	26.0	30.5	37.2	2.6	2.0	4.3	2.6
<i>Central Region</i>	37.2	40.6	45.2	2.8	2.2	3.7	2.6
Bharuch	15.0	17.4	18.6	2.2	1.9	3.7	1.6
Surat	22.1	33.7	42.7	3.1	—4.7	1.2	3.4
Valsad	—	18.0	22.0	—	—	—	2.2
Dangs	—	—	—	2.7	2.7	—	1.9
<i>South Region</i>	20.2	24.3	29.8	2.6	2.1	4.5	2.5
Gujarat States	25.8	28.1	31.2	2.6	2.3	3.5	2.5

Districts/Regions	Annual growth rate of population 1971-81			Annual growth rate of population 1961-81		Density of urban population (person per sq. km.)		
	Rural	Urban	Total	Rural	Urban	1961	1971	1981
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Jamnagar	1.9	2.9	2.7	2.5	2.9	1627	929	1221
Rajkot	2.1	3.3	2.8	2.6	3.1	2726	2535	3412
Surendranagar	1.8	2.6	2.2	2.2	2.4	1680	632	769
Bhavnagar	2.7	3.4	2.6	2.4	2.9	2899	1181	1556
Amreli	2.3	2.7	2.4	2.5	2.2	1444	564	783
Junagadh	2.2	2.7	2.6	2.5	3.0	2167	922	1194

(Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Saurashtra Region</i>	2.2	3.0	2.6	2.5	2.9	2118	1050	1386
Kutch Region	2.0	2.5	2.1	1.6	3.5	836	600	824
Banaskantha	2.9	1.8	2.6	2.5	3.5	1164	767	1595
Sabarkantha	2.2	3.4	2.5	2.3	4.6	1734	745	1221
Mehsana	1.8	2.8	2.1	1.9	2.7	3257	1506	1915
Panchmahals	2.3	2.2	2.3	2.3	2.6	1870	1830	2277
<i>North Region</i>	2.3	2.6	2.3	2.2	3.0	2167	1230	1810
Gandhinagar	2.5	10.0	3.4	2.5	10.0	—	424	1099
Ahmedabad	1.3	3.6	2.8	1.2	3.7	6799	4327	5641
Kheda	2.1	2.2	2.1	2.1	2.3	2031	1490	1846
Vadodara	1.6	4.7	2.6	1.8	4.5	5083	3312	3926
<i>Central Region</i>	1.8	3.7	2.7	2.0	3.7	4572	3017	3928
Bharuch	1.4	2.3	1.9	1.7	3.0	6757	1950	2261
Surat	1.9	5.9	0.1	—2.9	3.4	4046	4614	5838
Valsad	1.7	4.3	2.2	1.7	4.3	—	2359	2708
Dangs	1.9	—	2.3	2.3	—	—	—	—
<i>South Region</i>	1.7	4.9	2.6	1.9	4.7	4395	3112	3827
<i>Gujarat States</i>	2.0	3.5	2.5	2.2	3.5	2799	1624	2227

SOURCE : *Census of India*, Series 5, Gujarat Population Tables, 1961, 1971 and 1981.

From the foregoing discussion of urban growth it can be concluded that the regional and districtwise differences of urbanisation are arising mainly out of recent development and rural-urban migration. The central Gujarat and Saurashtra are highly urbanised areas in the state. We have also observed that there are considerable inter-district variation in the percentage share of urban population.

It is also seen that mainly the district headquarters towns are having larger proportion of urban population compared to other towns of the districts. Hence it becomes important to understand the urbanisation pattern of the major cities of Gujarat.

City-Classwise Population

It may be noted that there were 200 urban centres in 1971 and their number has increased to 220 in 1981 (Table 6). It is interesting to note that during 1971-81 the share of urban population increased only in Class I cities while the share declined in all other classes, and the highest decline was in Class V cities having population in the range of 5000 to 9999 person. This is also supported by the fact that during 1971-81 it is only the class V cities which have declined from 67 in 1971 to 53 in 1981. This shows movement of towns from lower class to upper classes by their population increase. Thus it is clear that the bigger cities are becoming bigger.

TABLE 6 CITY-CLASSWISE PERCENTAGE SHARE OF URBAN POPULATION AND NUMBER OF TOWNS

City size classes	Percentage share of urban population		Number of Towns	
	1971	1981	1971	1981
Class I	49.0	57.9	8	13
Class II	15.4	14.5	17	23
Class III	15.7	13.4	37	46
Class IV	12.8	10.2	66	76
Class V	6.8	3.8	67	53
Class VI	0.3	0.2	5	9
All Classes	100.0	100.0	200	220

SOURCE : *Census of India*, Series-5, Gujarat, Population tables, paper 2, 198.

NOTE :

City-class wise population range:

Class I	One lakh and above		
Class II	50,000	—	99,999
Class III	20,000		49,999
Class IV	10,000		19,999
Class V	5,000		9,999
Class VI	Less than		5,000

In Table 7 we have given the distribution of Class I cities according to their population for 1971-81. The average growth rate of population for these cities during the last decades was estimated 4.2 per cent per annum. Surat, Navsari and Vadodara have higher rate of growth compared to the rest of the Class I cities. This could be because very recently the industrialisation has picked-up very fast in these cities. Diamond cutting industries in Surat and Navsari have attracted a number of workers from North Gujarat and Saurashtra. Surat-Navsari railway track has been industrialising very fast and Vadodara is one of the big industrial cities of the state and it has offered quite large amount of employment after discovery of oil in the state. Vadodara and Navsari had the percentage share of urban population to the extent of 6.8 per cent and 6.2 per cent, in 1971 respectively; the same was observed at 9 per cent and 7 per cent in 1981 respectively. Ahmedabad had 23 per cent in 1971 and 24 per cent in 1981. During last two decades Rajkot, Jamnagar and Bhavnagar together contributed around 10 per cent in the urban population. Thus, as per 1981 Census more than 50 per cent of urban population is residing in the above 7 cities. It can also be seen from the Table that Surat, Ahmedabad, Bharuch, Junagadh and Navsari have highly dense cities compared to other cities of the state.

TABLE 7 POPULATION GROWTH RATE, PERCENTAGE SHARE AND URBAN POPULATION AND DENSITY ON CLASS I CITIES

Name of city	Population		(in'000)		Annual Growth Rate	Percentage Share of urban popu- lation		Density person per sq. km.	
	1971	1981	Likly to be			1971	1981	1971	1981
			1991	2001					
					(1971-81)				
1. Ahmedabad	1742	2515	3651	5152	3.8	23.2	24.0	9070	13271
2. Surat	472	913	1778	3184	6.9	6.8	8.6	7793	14445
3. Vadodara	468	744	1178	1829	4.7	6.2	7.0	3228	5160
4. Rajkot	301	444	658	973	4.0	4.0	4.1	4357	6450
5. Jamnagar	215	317	469	695	4.0	3.0	3.0	3794	5289
6. Bhavnagar	226	308	418	568	3.1	3.0	2.9	2506	3423
7. Nadiad	108	142	188	247	2.8	1.4	1.3	3802	5010
8. Porbandar	97	134	183	251	3.2	1.4	1.3	3550	4435
9. Wadhavan	97	130	175	236	3.0	1.3	1.2	6853	9204
10. Navsari	73	129	229	406	5.9	1.1	1.2	3683	5943
11. Janagadh	96	120	151	189	2.3	1.3	1.1	7119	8940
12. Bharuch	92	112	137	167	2.0	1.2	1.1	11503	14031
13. Patan (Veravel)	76	105	147	205	3.4	1.0	1.0	1967	2742
TOTAL	4063	6113	9363	14102	4.2	54.9	57.9	5319	7957

SOURCE: 1. Quoted from S.S. Mehta, "Trend of Urbanisation in Gujarat", *Conference Paper*, Gujarat Economic Association, Vidyanagar, February, 1985.

2. Census of India, Series 5, Gujarat Population Tables 1971 and 1981.

It may be mentioned that it is not only the migration that has resulted in the higher growth rate but also natural growth may be the factor affecting the growth of cities. By 1991 it is assumed that 7 more cities *viz.*, Godhra, Anand, Valsad, Dohad, Dhoraji, Mehsana and Gandhinagar are likely to be class I cities (more than one lakh population) and by 2001 there will be an addition of 11 more cities in class I cities *viz.*, Jetpur, Upleta, Morbi, Mahuva (Bhav.), Botad, Bhuj, Gandhidham, Palanpur, Amreli, Paten and Kalol.⁴ ((see Table 8).

PRESENT URBANISATION STREAM

It has been shown and argued that Gujarat pattern of urbanisation can be classified in broadly two categories, *viz.*, urbanisation pattern due to industrial development and urbanisation pattern due to natural growth and agro-based industrial development. The urbanisation pattern

⁴S.S. Mehta, "Trend of Urbanisation in Gujarat", *Conference Paper*, Gujarat Economic Association, Vidyanagar, February, 1985.

in Ahmedabad, Vadodara, Surat, Navsari, Bharuch and Valsad can be classified as urbanisation due to the industrial development while the urbanisation of other cities in North Gujarat and city like Junagadh in Saurashtra may be classified as urbanisation due to natural growth and agro-based industrial development. It has been pointed out that the rate of urbanisation was faster where an industrial development was quite rapid. Since the urbanisation is very much linked with the industrial activities in the cities and nearby areas it can attract the people to migrate.

FUTURE PROSPECTS OF URBANISATION

There were 8 cities having more than one lakh population in 1971, there were 13 such cities in 1981. At the present rate of natural growth and migration, there will be 7 and 11 more cities added to in the class I cities by 1991 and by 2001 respectively (Table 8). 65.8 per cent of

TABLE 8 POPULATION OF CLASS-I CITIES ADDITION IN 1991 AND 2001

Name of city	Population (in '000)		Annual Growth Rate	Likely Population (in '000)	
	1971	1981		(1971-81)	1991
<i>A</i>	<i>Additional likely to be Class I upto 1991</i>				
1. Godbara	67	86	2.6	111	114
2. Anand	50	84	3.5	118	167
3. Valsad	63	83	2.8	109	143
4. Dohad	51	82	4.8	131	210
5. Dhoraji	60	78	2.6	100	130
6. Mehsana	52	73	3.5	103	145
7. Gandhinagar	24	62	10.5	161	419
TOTAL	376	548	3.8	833	1358
<i>B</i>	<i>Additional likely to be Class I upto 2001</i>				
1. Jetpur	42	63	4.2	95	144
2. Upleta	35	55	4.5	85	131
3. Morvi	61	73	1.9	89	107
4. Mahuva (Bhav.)	42	56	3.0	75	101
5. Botad	32	50	4.6	79	124
6. Amreli	44	58	2.9	78	103
7. Bhuj	53	70	2.9	93	124
8. Gandhidham	39	62	4.7	97	154
9. Palanpur	42	61	3.8	83	120
10. Patna	65	79	2.1	97	120
11. Kalol	50	70	3.4	100	137
TOTAL	505	697	3.2	971	1366
Total for 31 cities	4944	7388	4.1	11167	17294

SOURCE : See Table 7.

urban population was in these 31 cities in 1971 and 69.8 per cent in 1981. In 1991 population of these 31 cities is estimated to be 73.3 per cent and by 2001 more than 80 per cent of urban population will be living in these 31 cities.⁵

It is also expected that when Narmada Project will be changing the entire complex of North Gujarat and some part of Saurashtra, it is expected that this area will have the advantage of agricultural development and agro-based industrial complexes. Hence the present rate of urbanisation in North Gujarat and Saurashtra will be rising up.

CONCLUDING OBSERVATIONS

A broad analysis of data related to the distribution of urban population in the state during 1961-1981 reveals that there has been a definite tendency of urban concentration over particular areas characterised mainly by non-agricultural activities. The growth of urban population districtwise can be broadly classified in four categories: (a) high growth; (b) medium growth; (c) low growth; and (d) no growth. In terms of its special distribution, the highest growth of urban population has been recorded in the district of Ahmedabad. The second highest is Surat district with 42.7 per cent and followed by Rajkot district with 42.0 per cent. It must, however, be remembered that in the 1971 Census, Rajkot was reported to second rank. The Banaskantha, Sabarkantha and Panchmahals districts of North Gujarat have the lowest level of urbanisation.

The highest rate of growth of urbanisation was estimated in the district of Gandhinagar, Surat, Vadodara, Valsad and Sabarkantha while the lowest in the Banaskantha and Panchmahals districts.

The growth of different cities over the last two decades, makes it evident that the major portion of urban population has continued to remain and grow within class I cities of the states. It has also been noted that in the future 31 cities are likely to have more than one lakh population. Thus, by 2001, more than 80 per cent of urban population will live in class I cities.

During last decade, the growth of urban population has been rapid. It has supported the estimates of the Expert Commission which estimated as 31.08 per cent of the state total population at the end of 1981. This marks an increase of 3 per cent over the 1971 figures which appeared as 28.08 per cent. The level of urbanisation is likely to rise in the future with the introduction of Narmada Command Development.

Over time the dominance of industrial and the component of commercialisation continued to increase progressively with their spatial

⁵ S.S. Mehta, *op. cit.*

manifestation in terms of capital cities, industrial cities, intermediate trade centres countryside town, etc. The component of migration becomes prominent in the formulation of such patterns leading eventually to a dualism within the urban economic structure of most such cities. Though urbanisation has its advantage in terms of better life style, it has also the disadvantage in terms of unemployment, poverty, problem of traffic congestions, slum explosion, ecological and environmental pollution, crime, inefficient provision and allocation of civic services, health, over-crowding of population, waste of time, etc.

We would like to add in this note that while planning for future urbanisation of the state the problem of shortage of housing, basic facilities and planning of urban places and promotion to rural areas also must be looked in advance. As an extension to this it can be said that there is the biggest challenge to urban planning.⁶

We are not certain whether there is some absolute limit beyond which cities cannot grow and whether bigger cities in Gujarat have crossed this limit of 'optimal' size.⁷ By 2001 more than 80 per cent of urban population will be living in only 31 big cities, therefore a long term planning with proper care for problems must be initiated immediately. □

⁶Biswaroop Das, "Urban Growth in Gujarat", *Business Standard*, December 5 and 6, 1985.

⁷M.P. Bhatt, "Pattern of Urbanisation in Gujarat" *Seminar Paper*, Planning Department, Gandhinagar, 1982.

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The Chartered Bus in Calcutta: Its Operation, Viability and Future Prospects

DILIP HALDER AND GURUDAS GUPTA

INTRODUCTION

A CUMULATIVE demand shortfall of 2.5¹ to 3 million passenger/trips¹ over 4 decades of mass transportation planning spurred the entry of various types of personalised mass transit modes (PMTM) into the trafficscape of Calcutta. A dominant operational feature was the reemergence of privately owned mass transit modes since 1966-67 as a result of the rapidly deteriorating services of the state owned organisations, notably the Calcutta State Transport Corporation (CSTC) and the Calcutta Tramways Company (CTC). While the services of private buses (1966) and minibuses (1972) were formally requisitioned by the state to tackle the heavy demand shortfall, the spillover continued to be served by a number of personalised mode types; private cars, taxis, rickshaws and autorickshaws in the individual and the contract bus in the mass travel categories respectively.

Contract/chartered buses (CB) were active since 1954-55 as personalised modes on selective routes and time schedules, offering their services to office and industrial workers, management staff and school children². Through the sixties, till date, they are officially entrusted with identical duties. But their operational and organisational behaviour have undergone a major shift in service objective and potential. From a high PMTM category of service to partial operations of regular mass transit mode (RMTM) type; the CB has superimposed itself on the functions and clientele of the latter.

¹Approximate total daily inter-urban demand (in million) may be classified into:

Resident Transit Demand:	3.3 (vide population in <i>Census of India 1981</i>) to 4.0.
Non-Resident/Floating Transit Demand	2.5 to 3.5
Total estimated inter-urban demand	5.8 to 7.5
Effective Total Supply	4 to 4.5

²The first CB to ply on chartered duty were a 50 seater diesel operated RCB (WBY 5247) on contract with Asbestos Cement Company, Taratola, and a 28 Seater petrol operated Ford 1938 model (WBY 1425) on School trips.

This has occurred chiefly owing to a chronic shortage of RMTM supply coupled with a resultant rise in commuter willingness to spend more on inter-urban travel in lieu of a more dependable and efficient form of service. This has encouraged large scale operations of the city limits.

Rapid fleet expansion from a modest 30 in the sixties and 12 in the early seventies to 500 units between mid '70s and early '80s followed in response to the rising demand for their services, both regular and unauthorised³. Today CB services make an estimated 1.85-2 lakh (1 lakh=100,000) inter-urban passenger trips daily which is 3.64 per cent of the city's estimated travel demand or 9.95 per cent in terms of total MTM supply. This performance closely follows the Minibus which is authorised on inter-urban duties and has been gradually transformed into a RMTM⁴. Simultaneously CB operational area now extends over almost all RMTM routes and long distance routes hitherto covered by state and authorised private express buses.

In the absence of any clearcut policy directing CB movement pattern and lack of vigilance on their *modus operandi*, 70 per cent inter-urban and 50 per cent long distance operations are conducted unauthorisedly. While the authorities do not feign ignorance, yet they have been rendered ineffective primarily because of their inability to:

1. tackle the demand deficit through immediate alternatives.
2. frame workable guidelines to control intermodal competition and unauthorised vehicle movement.
3. monitor the activities of traffic control and vigilance authorities through appropriate interpretations, ambiguous administrative rules and regulations into workable plans.
4. analyse the actual functions of such modes in terms of economic and operational viability.
5. co-relate mode services potential to social welfare in the context of anticipated urban development of the catchment area.

A negative impact of unauthorised operations leading to unplanned model growth in the city is duly reflected by, among others, the Jekyl and Hyde identity maintained by the unorganised sector in general and the CB services in particular. For them, profit maximisation in an oligopolistic transit service market, punctuated by escalating costs and operational insecurity, becomes the ultimate objective.

³RTA, STA and primary data.

⁴Dilip Halder and Gurudas Gupta, "The Minibus in Calcutta: An Analysis of Its Performance". *Nagarloek*, Vol. XVI, No. 1, January-March, 1984.

TABLE 6 CITY-CLASSWISE PERCENTAGE SHARE OF URBAN POPULATION AND NUMBER OF TOWNS

City size classes	Percentage share of urban population		Number of Towns	
	1971	1981	1971	1981
Class I	49.0	57.9	8	13
Class II	15.4	14.5	17	23
Class III	15.7	13.4	37	46
Class IV	12.8	10.2	66	76
Class V	6.8	3.8	67	53
Class VI	0.3	0.2	5	9
All Classes	100.0	100.0	200	220

SOURCE : *Census of India, Series-5, Gujarat, Population tables, paper 2, 198.*

NOTE :

City-class wise population range:

Class I	One lakh and above	
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Class IV	10,000	19,999
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In Table 7 we have given the distribution of Class I cities according to their population for 1971-81. The average growth rate of population for these cities during the last decades was estimated 4.2 per cent per annum. Surat, Navsari and Vadodara have higher rate of growth compared to the rest of the Class I cities. This could be because very recently the industrialisation has picked-up very fast in these cities. Diamond cutting industries in Surat and Navsari have attracted a number of workers from North Gujarat and Saurashtra. Surat-Navsari railway track has been industrialising very fast and Vadodara is one of the big industrial cities of the state and it has offered quite large amount of employment after discovery of oil in the state. Vadodara and Navsari had the percentage share of urban population to the extent of 6.8 per cent and 6.2 per cent, in 1971 respectively; the same was observed at 9 per cent and 7 per cent in 1981 respectively. Ahmedabad had 23 per cent in 1971 and 24 per cent in 1981. During last two decades Rajkot, Jamnagar and Bhavnagar together contributed around 10 per cent in the urban population. Thus, as per 1981 Census more than 50 per cent of urban population is residing in the above 7 cities. It can also be seen from the Table that Surat, Ahmedabad, Bharuch, Junagadh and Navsari have highly dense cities compared to other cities of the state.

TABLE 7 POPULATION GROWTH RATE, PERCENTAGE SHARE AND URBAN POPULATION AND DENSITY ON CLASS I CITIES

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11. Janagadh	96	120	151	189	2.3	1.3	1.1	7119	8940
12. Bharuch	92	112	137	167	2.0	1.2	1.1	11503	14031
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PRESENT URBANISATION STREAM

It has been shown and argued that Gujarat pattern of urbanisation can be classified in broadly two categories, *viz.*, urbanisation pattern due to industrial development and urbanisation pattern due to natural growth and agro-based industrial development. The urbanisation pattern

⁴S.S. Mehta, "Trend of Urbanisation in Gujarat", *Conference Paper*, Gujarat Economic Association, Vidyanagar, February, 1985.

in Ahmedabad, Vadodara, Surat, Navsari, Bharuch and Valsad can be classified as urbanisation due to the industrial development while the urbanisation of other cities in North Gujarat and city like Junagadh in Saurashtra may be classified as urbanisation due to natural growth and agro-based industrial development. It has been pointed out that the rate of urbanisation was faster where an industrial development was quite rapid. Since the urbanisation is very much linked with the industrial activities in the cities and nearby areas it can attract the people to migrate.

FUTURE PROSPECTS OF URBANISATION

There were 8 cities having more than one lakh population in 1971, there were 13 such cities in 1981. At the present rate of natural growth and migration, there will be 7 and 11 more cities added to in the class I cities by 1991 and by 2001 respectively (Table 8). 65.8 per cent of

TABLE 8. POPULATION OF CLASS-I CITIES ADDITION IN 1991 AND 2001

Name of city	Population (in '000)		Annual Growth Rate	Likely Population (in '000)	
	1971	1981		(1971-81)	1991
<i>A</i>	<i>Additional likely to be Class I upto 1991</i>				
1. Godbara	67	86	2.6	111	114
2. Anand	50	84	3.5	118	167
3. Valsad	63	83	2.8	109	143
4. Dohad	51	82	4.8	131	210
5. Dhoraji	60	78	2.6	100	130
6. Mehsana	52	73	3.5	103	145
7. Gandhinagar	24	62	10.5	161	419
TOTAL	376	548	3.8	833	1358
<i>B</i>	<i>Additional likely to be Class I upto 2001</i>				
1. Jetpur	42	63	4.2	95	144
2. Upleta	35	55	4.5	85	131
3. Morvi	61	73	1.9	89	107
4. Mahuva (Bhav.)	42	56	3.0	75	101
5. Botad	32	50	4.6	79	124
6. Amreli	44	58	2.9	78	103
7. Bhuj	53	70	2.9	93	124
8. Gandhidham	39	62	4.7	97	154
9. Palanpur	42	61	3.8	83	120
10. Patna	65	79	2.1	97	120
11. Kalol	50	70	3.4	100	137
TOTAL	505	697	3.2	971	1366
Total for 31 cities	4944	7388	4.1	11167	17294

SOURCE : See Table 7.

urban population was in these 31 cities in 1971 and 69.8 per cent in 1981. In 1991 population of these 31 cities is estimated to be 73.3 per cent and by 2001 more than 80 per cent of urban population will be living in these 31 cities.⁵

It is also expected that when Narmada Project will be changing the entire complex of North Gujarat and some part of Saurashtra, it is expected that this area will have the advantage of agricultural development and agro-based industrial complexes. Hence the present rate of urbanisation in North Gujarat and Saurashtra will be rising up.

CONCLUDING OBSERVATIONS

A broad analysis of data related to the distribution of urban population in the state during 1961-1981 reveals that there has been a definite tendency of urban concentration over particular areas characterised mainly by non-agricultural activities. The growth of urban population districtwise can be broadly classified in four categories: (a) high growth; (b) medium growth; (c) low growth; and (d) no growth. In terms of its special distribution, the highest growth of urban population has been recorded in the district of Ahmedabad. The second highest is Surat district with 42.7 per cent and followed by Rajkot district with 42.0 per cent. It must, however, be remembered that in the 1971 Census, Rajkot was reported to second rank. The Banaskantha, Sabarkantha and Panchmahals districts of North Gujarat have the lowest level of urbanisation.

The highest rate of growth of urbanisation was estimated in the district of Gandhinagar, Surat, Vadodara, Valsad and Sabarkantha while the lowest in the Banaskantha and Panchmahals districts.

The growth of different cities over the last two decades, makes it evident that the major portion of urban population has continued to remain and grow within class I cities of the states. It has also been noted that in the future 31 cities are likely to have more than one lakh population. Thus, by 2001, more than 80 per cent of urban population will live in class I cities.

During last decade, the growth of urban population has been rapid. It has supported the estimates of the Expert Commission which estimated as 31.08 per cent of the state total population at the end of 1981. This marks an increase of 3 per cent over the 1971 figures which appeared as 28.08 per cent. The level of urbanisation is likely to rise in the future with the introduction of Narmada Command Development.

Over time the dominance of industrial and the component of commercialisation continued to increase progressively with their spatial

⁵ S.S. Mehta, *op. cit.*

manifestation in terms of capital cities, industrial cities, intermediate trade centres countryside town, etc. The component of migration becomes prominent in the formulation of such patterns leading eventually to a dualism within the urban economic structure of most such cities. Though urbanisation has its advantage in terms of better life style, it has also the disadvantage in terms of unemployment, poverty, problem of traffic congestions, slum explosion, ecological and environmental pollution, crime, inefficient provision and allocation of civic services, health, over-crowding of population, waste of time, etc.

We would like to add in this note that while planning for future urbanisation of the state the problem of shortage of housing, basic facilities and planning of urban places and promotion to rural areas also must be looked in advance. As an extension to this it can be said that there is the biggest challenge to urban planning.⁶

We are not certain whether there is some absolute limit beyond which cities cannot grow and whether bigger cities in Gujarat have crossed this limit of 'optimal' size.⁷ By 2001 more than 80 per cent of urban population will be living in only 31 big cities, therefore a long term planning with proper care for problems must be initiated immediately. □

⁶Biswaroop Das, "Urban Growth in Gujarat", *Business Standard*, December 5 and 6, 1985.

⁷M.P. Bhatt, "Pattern of Urbanisation in Gujarat" *Seminar Paper*, Planning Department, Gandhinagar, 1982.

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The Chartered Bus in Calcutta: Its Operation, Viability and Future Prospects

DILIP HALDER AND GURUDAS GUPTA

INTRODUCTION

A CUMULATIVE demand shortfall of 2.5¹ to 3 million passenger/trips¹ over 4 decades of mass transportation planning spurred the entry of various types of personalised mass transit modes (PMTM) into the trafficscape of Calcutta. A dominant operational feature was the reemergence of privately owned mass transit modes since 1966-67 as a result of the rapidly deteriorating services of the state owned organisations, notably the Calcutta State Transport Corporation (CSTC) and the Calcutta Tramways Company (CTC). While the services of private buses (1966) and minibuses (1972) were formally requisitioned by the state to tackle the heavy demand shortfall, the spillover continued to be served by a number of personalised mode types; private cars, taxis, rickshaws and autorickshaws in the individual and the contract bus in the mass travel categories respectively.

Contract/chartered buses (CB) were active since 1954-55 as personalised modes on selective routes and time schedules, offering their services to office and industrial workers, management staff and school children². Through the sixties, till date, they are officially entrusted with identical duties. But their operational and organisational behaviour have undergone a major shift in service objective and potential. From a high PMTM category of service to partial operations of regular mass transit mode (RMTM) type; the CB has superimposed itself on the functions and clientele of the latter.

¹ Approximate total daily inter-urban demand (in million) may be classified into:

Resident Transit Demand	3.3 (vide population in <i>Census of India 1981</i>) to 4.0
Non-Resident/Floating Transit Demand	2.5 to 3.5
Total estimated inter-urban demand	5.8 to 7.5
Effective Total Supply	4 to 4.5

² The first CB to ply on chartered duty were a 50 seater diesel operated RCB (WB 5247) on contract with Asbestos Cement Company, Taratola, and a 28 Seater petrol operated Ford 1938 model (WB 1425) on School trips.

This has occurred chiefly owing to a chronic shortage of RMTM supply coupled with a resultant rise in commuter willingness to spend more on inter-urban travel in lieu of a more dependable and efficient form of service. This has encouraged large scale operations of the city limits.

Rapid fleet expansion from a modest 30 in the sixties and 12 in the early seventies to 500 units between mid '70s and early '80s followed in response to the rising demand for their services, both regular and unauthorised³. Today CB services make an estimated 1.85-2 lakh (1 lakh=100,000) inter-urban passenger trips daily which is 3.64 per cent of the city's estimated travel demand or 9.95 per cent in terms of total MTM supply. This performance closely follows the Minibus which is authorised on inter-urban duties and has been gradually transformed into a RMTM⁴. Simultaneously CB operational area now extends over almost all RMTM routes and long distance routes hitherto covered by state and authorised private express buses.

In the absence of any clearcut policy directing CB movement pattern and lack of vigilance on their *modus operandi*, 70 per cent inter-urban and 50 per cent long distance operations are conducted unauthorisedly. While the authorities do not feign ignorance, yet they have been rendered ineffective primarily because of their inability to:

1. tackle the demand deficit through immediate alternatives.
2. frame workable guidelines to control intermodal competition and unauthorised vehicle movement.
3. monitor the activities of traffic control and vigilance authorities through appropriate interpretations, ambiguous administrative rules and regulations into workable plans.
4. analyse the actual functions of such modes in terms of economic and operational viability.
5. co-relate mode services potential to social welfare in the context of anticipated urban development of the catchment area.

A negative impact of unauthorised operations leading to unplanned model growth in the city is duly reflected by, among others, the Jekyl and Hyde identify maintained by the unorganised sector in general and the CB services in particular. For them, profit maximisation in an oligopolistic transit service market, punctuated by escalating costs and operational insecurity, becomes the ultimate objective.

³RTA, STA and primary data.

⁴Dilip Halder and Gurudas Gupta, "The Minibus in Calcutta: An Analysis of Its Performance", *Nagarloek*, Vol. XVI, No. 1, January-March, 1984.

OBJECTIVE OF THE STUDY

The paper has two major objectives : (1) primarily, to analyse the economic viability of inter-urban CB operation in Calcutta; and (2) Simultaneously, to justify such operations in a dynamic urban environment through an evaluation of its social benefit potential.

VEHICLE DESCRIPTION AND OPERATIONAL CHARACTERISTICS

A CB may be described as a motorised carriage designed to carry multiple passengers and operating under contract with an individual/group/agency on specified routes with fixed trip and time schedules. Usually the user specifies the route, origin and destination points. Passenger stops along the route may be multiple⁵.

Three categories of CB ply in Calcutta. Although a minimum of functional dissimilarities exist, the categories may be distinguished by their physical/structural differences as well as the type of operational permit held.

Route Stage Carriage Converted to CB (RCB)

They are old/new RTM fitted with better upholstery and shuttered windows. A distinct coat of paints applied on their aluminium exterior, as per Bengal Tourist Vehicles rules, segregate them visually from their route counterparts. Material input used in coach construction is primarily wood, costing between Rs. 60,000-70,000. Reminiscent of early CB types in the city, they are mainly used today by educational institutions. Office duties though existent, are becoming rarer.

Luxury Tourist Carriage (LCB)

Essentially new vehicles with specified seating capacity varying according to nature of permit held. Coachwork is either 'Composite', a term denoting prefabricated components made of angle and wood, costing between Rs. 125,000-140,000, or 'Profile', an all steel structure with rivetted joints costing between Rs. 140,000-160,000. Weighing lighter, a profile structure enhances the fuel efficiency of the vehicle but the city's humid climate makes steel prone to rust faster. Presumably, a composite structure is preferred by CB owners. Mandatorily fitted with glass paned windows, these are essentially committed to tourist use.

Idle Contract Coach (ICB)

Either old/new vehicles termed 'Idle' because of exclusive operations on temporary/special permits on stipulated occasions and supposed to

⁵Condensed and contextualised from Act 2 Section 3 of the (Indian) Motor Vehicles Act, 1939.

remain non-functional or 'idle' for the remaining period. Seating capacity being flexible, is usually adjusted to demand for optimising per head travel expenditure. Both 'composite' and all-wood structures are used though the former is more preferred.

Besides these categories which are exclusively private enterprises, there are vehicles owned by government tourist agencies, namely, the India Tourism Development Corporation (ITDC) and the West Bengal Tourism Development Corporation (WBTD) which essentially function as authorised tourist vehicles. CSTC, the primary transport service organisation in Calcutta, also has provisions for operating on charter demand. The aim of the present paper is, however, to focus on the activities of the unorganised private sector.

Investigations were accordingly conducted on a sample size consisting of 225 CB units covering the above 3 categories. A comprehensive description of vehicle and fundamental operational characteristics has been collated in Table 1.

It is evident from Table 1 that irrespective of physical and permit differences, all categories of CB presently operating in Calcutta and its hinterland function as a single mode unit. The analysis therefore proceeds without mentioning any particular category. Henceforth the common name, CB, has been widely used.

ORIGIN DESTINATION (OD) SURVEY

An OD study was conducted on the sample units to assist in the identification and analysis of operational and transit demand characteristics of the mode.

Ten screen points (SP) were set-up along the existing principal transit corridors (PTC) involving CB movement on inter-urban routes. These were divided on zonal basis, the emphasis on selection being made according to the observed transit priority pattern in each zone (Table 2).

The study was carried over the period September 1983—June 1984. It includes the peak season for tourism in Calcutta between October and March. It could also be relied upon to yield any fluctuations arising out of climatic variations in inter-urban transit demand, the investigation period having covered the predominant climates of Calcutta.

However, the convergence of 60 per cent of the selected SP with their respective route origins, necessitated the insertion of certain other check points on the SP—PTC axes to offset any operational divergence perpetrated by other CB units with different OD points but plying on identical routes and CB units with identical OD points but using different routes. These points have been named Interference Coordinates (IC). The selected ICs were made to coincide with possible interchange points on the principal transit route geometry to help explore

the possible emergence of a coordinated pattern of CB movement across the city (Table 3). In the long run a complementary inter unit movement would cut down trip frequencies, minimise operational costs and reciprocally maximise user benefit.

Fig. 1 shows a diagrammatic representation of the selected ICs situated along the route alignments. The points have been superimposed on transit map of the city (Appendix 1).

MOVEMENT PATTERN

Inter-urban Operations

The study reveals that 61.45 per cent of sample units use the North-South and 66.5 per cent the North-South/South-West PTCs respectively. While 38.55 per cent use the East-South West corridors, 33.5 per cent ply the East-South/South West axis. 88 per cent—90 per cent of peak hour (7-30 to 10-30 hrs) office bound units touch the CBD core on a normal working day. Of the 10 per cent—12 per cent through transit units on North-South and East-South West alignments, the former axis emerged dominant with some units from the East veering off towards the South-West and North in the direction of the Taratola/Garden Reach industrial area and Dunlop and beyond respectively.

Of the CBD touching units, 75 per cent—80 per cent have their destinations at points located within that area. The remainder are in-transit units on their way to the North-South and North-South West axis. Only 7 per cent of the total sample cross to the Western flank of the city along the existing Howrah Bridge (Rabindra Setu) to Howrah and adjacent areas.

Based on the study, a directional Flow Matrix has been constructed. It outlines the movement pattern of CB within the metropolis while specifying the axis with maximum and minimum units traffic densities (Table 4). In the matrix, co-efficients denote percentages (%) of sample fleet.

Observations from various ICs further revealed that frequency of movement for North to South/Central/South via Central/South West via Central bound units was maximum at IC2 (63.2% of all North-South bound peak hour units). The construction work on the Calcutta Metro Rail (RTS) on Central Avenue, Jatindramohon Avenue and Bhupen Bose Avenue has restricted the flow of all modes including the CB on the North to Central direct corridor so that IC2 is the focal centre for not only South and Central bound units but also for an 18 per cent of East to North/South via Central/South West via Central bound volume preferring to operate on the Northern stretch of the city.

TABLE 1 CHARACTERISTICS OF CB OPERATION IN CALCUTTA (1983-84)
CATEGORY

LEGEND	RCB	LCB	ICB
(1)	(2)	(3)	(4)
1. Year of Inception	1. 1955	1. 1975, regularly after	1. 1964, with Temporary Permits changed in 1975 to ABP; in January 1983 permit altered for inter state trips exclusively
2. Design of Carriage	1. Ordinary Route Carriage 2. Semi-Deluxe	1. Deluxe NAC 2. Deluxe AC	1. Semi-Deluxe NAC 2. Deluxe NAC
3. Predominant Makes with Physical Specifications	1. TATA LP 1210 E/52 2. Hindustan/Bedford 3. Ford 4. Dodge 5. WB for (2), (3) & (4) 205" for (1) WB=205" with 40%-50% max. overhang	1. TATA LP 1210 E/52 2. TATA LP 055 3. A Leyland (Cheetah) 4. WB for 2&3=217" with 60% max. overhang (STA) & 50% max. overhang (RIA)	1. TATA LP 1210 E/52 2. TATA LPO 55
4. Payload capacity with seat arrangement	1. 10.5-11.5 ton average (WL) 2. 40-60 Adults or 55-70 children plus staff 3. Seats 2 by 3 in rows or along body contour and/or 2 extra middle rows on opposite sides 4. 11" leg space between rows 5. Officially standing not allowed	1. 10.5-12 ton average (WL) 2. 45-52 adults on ABP and 35 on AITP plus staff. 3. 2 by 3 in rows on ABP 2 by 2 in rows on AITP all seats front facing 4. 14"-15" leg space 5. Officially standing not allowed 6. Till 1982 Rules specified that Entrance & Exit doors be behind FA; from 1983 to be as far front as possible	1. 10.5-12.5 ton average (WL) 2. 45-60 adults or 65-80 children plus staff 3. 2 by 3 in rows front facing seats 4. 11"-14" leg space 5. Officially standing not allowed but 30-40 standing passengers are regularly carried on long distance non-tourist trips

5. Additional Requirements/Accessories to be provided	1. No special requirement	1. Drinking water/Ice box 2. PAM system 3. Fire Extinguisher 4. Emergency Exit	1. No special requirement unless on tourist trips
6. Nature of Permit	1. Interurban for Office/School trips issued by RTA 2. Tourist Permit/ABP issued by STA	1. Tourist Permit/ABP issued by STA 2. AITP issued by STA	1. Outstation Permits issued by STA.
7. Owning/Operating Agency	1. Office/Factory 2. Educational Institutions 3. Route transport operators 4. Private Tourist/Travel Agency 5. Institutional Cooperatives	1. Individuals/Groups operating as Tourist/Travel agency and/or on lease sub-lease 2. Private Tourist/Travel Agency 3. Identical to RCB in addition to Inter State tourist and non-tourist trips	1. Route Transport Operators 2. Identical to items (1) & (2) under LCB
8. Service Category	1. Office Trips 2. School/College Trips 3. Festival and Social occasions 4. Inter urban tourist and non-tourist trips 5. Inter Regional tourist and non-tourist trips	1. Identical to RCB	1. Identical to LCB

NOTE : Following Abbreviations correspond to :

ABP=All Bengal Permit
NAC=Non-Air Conditioned
AC =Air Conditioned

WB=Wheel Base

WL=With Load

AITP=All India Tourist Permit

FA=Front Axle
PAM=Public Address cum Music System
RTA=Regional Transport Authority

STA=State Transport Authority.

TABLE 2 SELECTED SCREEN POINTS USED IN OD STUDY

<i>Zone/Direction</i>	<i>Screen Points (SP)</i>
North	(i) Shambazar/Baghbazar
	(ii) Dunlop Bridge
	(iii) Nagerbazar Junction
South	(iv) Ballygunge Station/Golpark
	(v) Bhakuria (later extended to Jadavpur terminus)
East	(vi) Regent Park
	(vii) Phulbagan (later extended to Ultadange)
	(viii) Beliaghata/CIT Road Junction (now closed to traffic)
South-West (6)	(ix) New Alipore 5-point crossing
	(x) Behala Tram Terminus (extended to Chowrasta)

TABLE 3 SELECTED INTERFERENCE CO-ORDINATES USED IN OD STUDY

<i>IC number</i>	<i>Intersection legend</i>
1	Shambazar 5 Point
2	Maniktala
3	Rajabazar
4	Central Avenue—B.B. Ganguly Street
5	Moulali
6	Kidderpore Road—Casurina Avenue—Red Road
7	Rabindra Sadan
8	Park Circus 5 Point
9	Sahapur (Taratala)
10	Dipti Cinema (Tollygunge)

TABLE 4 DIRECTIONAL FLOW MATRIX OF MOVEMENT OF CB

<i>Origin Zones</i>	<i>Traffic Destination Zones</i>									<i>Cumulative Flow</i>
	<i>N</i>	<i>NVC</i>	<i>E</i>	<i>EVC</i>	<i>C</i>	<i>S</i>	<i>SVC</i>	<i>SW</i>	<i>SWVC</i>	
N	—	—	2.22	—	25.33	15.55	11.55	23.11	20.44	98.20
E	7.55	—	—	—	17.77	9.33	4.88	25.77	18.66	83.96
S	18.22	34.66	2.66	4.88	21.77	—	—	8.00	—	90.19
SW	3.55	3.55	—	2.66	7.11	0.44	—	—	—	17.31
Cumulative Flow	29.32	38.21	4.88	7.54	71.98	25.32	16.43	56.88	39.10	

NOTE : N stands for North

E " " East

S " " South

SW " " South-West

VC " " Via Central, i.e., NVC is North via Central, etc.

C " " Central.

IC3 takes over the majority of East to South/South *via* Central/South West/South West *via* Central bound peak (66.5%) alongwith a spillover (16%) from North originating units bypassing the entire Northern section of RTS construction site. The ultimate exodus of all North and East originating units proceeding to the South, Central and South West, bifurcate along a 2-way projection causing, alongwith other city traffic, regular bottlenecks at IC4 and IC5. IC4 takes in approximately 85 per cent of peak volume.

Compared to the Northern and Eastern axes, the South and South West corridors have greater road space which includes wider surface area. Hence it facilitates the movement of all personalised modes with no fixed route schedule along alternate route alignments. IC10 records the maximum peak volume unit traffic (95% from South of point, 15 per cent of South-Central; 68% of South-South West) which is then diverted towards IC9 and IC7 for South-West, Central and North bearing destinations. For availing the Eastern axis, units move from South-East *via* IC8. The Southern stretch of RTS construction work along S.P. Mukherji Road and Deshapran Sasmal Road in the Tollygunge area has come in the way of the desired line of travel along the main transit arteries.

IC9 was observed to handle 80 per cent of all South West bound units serving 76 per cent of all South-South West and 84 per cent of all North-South West and East-South West traffic. The availability of less congested, wider and smoother stretch along Diamond Harbour Road and Taratola Road in comparison to the straighter though heavily congested, narrower and rougher Garden Reach Road/Circular Garden Reach Road/Hide Road axis has facilitated maximum CB movement along the former axis, saving the operator and the user both time and money.

IC6 stands at a major confluence of South West and South PTC, especially for North and Central bound traffic from South and South West origins preferring to avoid the peak hour bottlenecks of the Chowringhee-Esplanade area.⁶ IC6 reveals transit usage of 92 per cent of all South West—Central/North/North *via* Central traffic alongwith 11 per cent South—Central/North in a Central peak volume. The return peak (16.00—19.30 hrs.) volume of Central/North *via* Central—South bound traffic is heavier (28%) at the junction since peak pedestrian and automotive traffic along other outlets become regularly congestion-prone.

IC8 at Park Circus junction handles 30 per cent of South-Central/

⁶Following the topographical restriction imposed on the Western side of the city by River Hooghly, transit along the river contour on the Eastern bank has been shown to follow a Southwest direction instead of a Westward movement.

North via Central/East via Central, 84 per cent of South-North and 97 per cent of South-East bound volume. The early completion of the Southern flank of the Eastern Metropolitan bypass would considerably cut down time and cost on South-East and South-North through transit.

Incidence of Seasonal Factor on Operations

Alongwith the regular travel attributes, the seasonal factor plays a unique role in the choice of CB as a transit mode. Oscillations in passenger demand and supply over the predominant seasons in the city affect CB movement. Compared to the post monsoon and winter seasons, inter-urban operations were stepped up during summer and monsoon. The unit supply is also affected during the tourist season which draws on the inter-urban supply reserve.

During summer it was observed that 85 per cent local units were engaged in inter-urban services. The season being particularly harsh, demand for CB has been gradually on the rise since 1979—1983/84 with the corresponding deterioration in travel conditions of a disproportionately increasing public transport system. Approximately, 20 per cent of the existing units being garaged for repairs after their tourist trips, the additional summer demand is serviced by:

1. fleet brought over from the adjacent regions (10%-15% of tourist supplement fleet);
2. the residue of outstation vehicles who obtain temporary residential permits and ply as inter-urban carriers (6%-10%); and
3. stage carriages withdrawn from scheduled routes (by their owners who usually possess more than 1 route bus) and diverted along CB routes (1%-2% of daily outshaded fleet).

Monsoon travel conditions in Calcutta today, defy any cognisable description. CB demand in monsoon is higher than in summer, Regular water-logging in streets, erratic frequency and supply of RMTM and a sharp deterioration in transit safety conditions have tilted the preference for CB over their 'organised' counterparts. Investigations reveal that commuters are willing to pay any addition to travel expenditure as a 'hazard overhead'. For 18 per cent long distance sample commuters, the marginal travel expenditure was nil, for 38 per cent it varies between Rs. 0.03-Rs. 0.05/km on medium distances travelled; for short distance commuters it usually varies between Rs. 0.10-0.14/km, rates which are comparable to what regular MTM, including Minibuses, charge.

Monsoon supply is maintained by the regular domestic fleet augmented by the summer contingent which return to back their original regions/

states during the slack post-monsoon tourist season, only to reappear when tourist and inter-urban services are once again in higher demand. The increasing operations of this migrant fleet have become a regular phenomena since 1979-1983/84, although the government is fully aware of the illegal nature of their activities⁷.

Trip Characteristics

Legally, a CB operates on a contract with a firm/institution for a stipulated time period. Payment is usually on monthly terms though the contract is drawn for annual/biannual services with provisions for extension or renewal. A 'contract' can also be made temporarily for social and festival occasions where terms and conditions depend on the occasion, season, duration, demand and often the financial and social status of the client. There is yet another form of inter-urban/tourist 'contract' operating within the city. On inter-urban routes an illegal 'contract' may be obtained from certain existing or fictitious firms, on the basis of which the unit caters to heterogeneous service category holders often with common ODs. Cash payment on monthly terms is the normal procedure with the amount paid a period in advance. Approximately 70 per cent of the units are engaged in such illegal operations. In 38 per cent sample cases, not even a 'contract' facsimile was evident.

On long distance routes, a 'tourist' permit is obtained by virtue of which regular passengers are illegally serviced on regular basis. In such cases a 'contract' is not a necessary condition⁸.

Thus without the government's aid or approval the entrepreneurs have solved the problem of optimal allocation of rolling stock following a simple yet innovative pattern. A vehicle sets out on its original 'contract' trip to a destination which may double as an origin for a different set of commuters. This may be followed by subsequent 'unofficial' duties, the number of trips varying with OD distance. The origin point may be shifted 4/5 times a day depending on the route and destination, with the result that the vehicle remains operational for 12-14 hours on a normal working day which may be extended

⁷Bringing tourists from neighbouring and far off states on a tour of West Bengal and adjacent states, the migrant CB often break journey at Calcutta transferring passengers on to other CB headed for stipulated destinations in singles and convoys or into the hands of local operators of conducted tours. Subsequently, the migrant units remain free to join the interurban fleet till they resume their backward journey.

⁸Tourist Permits obtained for long distance trips are originally issued on producing a copy of a 'contract' form. Passengers are 'however' picked at random on the basis of illegally issued or even without tickets so that the contract becomes operationally null and void.

by 2-4 hours on social and festival occasions served simultaneously.

The logic behind the entrepreneurs' argument for putting up such operations may be questionable but straightforward. An investment worth Rs. 350,000 cannot be permitted to remain idle after 2-4 hours of 'official' duty, more so when credit issuing authorities are limited, collateral demanded and interest charges higher than those under government aided or sponsored schemes⁹. Thus the investment-return ratio largely determines the trip allocations and operations.

On inter-urban routes, 4-4.5 complete trips are made in a normal working day with an average distance range of 160-200 kms. covered.

INTERURBAN DEMAND CHARACTERISTICS

An interview was conducted on 580 peak hour sample commuters who were selected at random. Group interview techniques were also applied wherever feasible. It was, however, possible to utilise the feedback from 552 queries for our analysis due to technical and other errors in the residue.

Non-tourist passengers are essentially urban in character. Originally, conceived as a personalised mode for the higher/upper-middle income earning service holders, the negative attributes of RMTM travel and an element of 'income-demonstration' effect has popularized this mode gradually among blue and lower grade white collar personnel in addition to school children, hospital staff, etc.

An income-passenger occupancy relationship reflecting the ex post user demand situation has been constructed in Table 5 followed by an attribute preference index (Table 6) which identifies the order in which travel attributes are ranked by commuters who have opted for CB services.

TABLE 5 INCOME RANGE OF CB COMMUTERS IN CALCUTTA

(Sample Size 552 Passengers)

<i>Income (in Rs.)/Month</i>	<i>Percentage of Users</i>
Below 1500	1.46
1500—1800	12.36
1800—2200	23.82
2200—2500	20.73
2500—3000	22.00
Above 3000	19.64

⁹Finance for CB is not obtained under the government sponsored Additional Employment Programme as in the case of Minibus, State Carriage, etc, where Bank rate of interest charged is 12.5%—13% per annum.

TABLE 6 PREFERENCE OF TRAVEL ATTRIBUTES BY CB COMMUTERS IN CALCUTTA

(Sample Size 552 Passengers)

Attributes	Gross Percentage of Commuters
Accessibility (A)	81.09 (2)
Dependability (D)	79.45 (3)
Punctuality (P)	86.73 (1)
Comfort (C)	68.00 (5)
Safety (S)	75.09 (4)
Glamour (G)	26.18 (6)

NOTE: Figures in parenthesis (col. 2) indicate order of preference.

Table 7 illustrates the relationship between the order of preference of travel attributes and the income range of sample commuters.

TABLE 7 RANKING OF TRAVEL ATTRIBUTES AMONG CB USER CATEGORIES

Income (in Rs.) /Month	Ranking of Attributes in order of importance										
Below 1500	P	>	A	>	S	>	D	>	C	>	G (77.69%)
1500—1800	A	>	D	>	P	>	S	>	C	>	G (91.03%)
1800—2200	P	>	A	>	D	>	S	>	C	>	G (80.88%)
2200—2500	A	>	P	>	D	>	C	>	S	>	G (94.38%)
2500—3000	P	>	A	>	D	>	S	>	C	>	G (79.23%)
Above 3000	P	>	D	>	C	>	A	>	S	>	G (86.11%)

NOTE: 1. > Stands for 'preferred to'.

2. Figures in parentheses denote per cent of sample commuter consensus in the particular income category.

It is evident from Table 5 that the maximum number of sample commuters fall in the middle to higher income range with a downward shifting trend from the earlier super high bracket. Simultaneously a noticeable change in the preference order of attributes highlights the importance given to certain demand characteristics highly essential for inter-urban transit. The predominance of (P), (A) and (D) among the essential attributes reflects, on the one hand, the efficiency ascribed to CB travel and its gradual popularity while on the other hand, the prevalent deteriorating travel conditions meted out by the RMTM in their absence. Safety (S) is another important factor acting in favour of CB travel since the RMTM regularly load passengers beyond safety margins. Calcutta's road space being limited (6%) and made worse by unauthorised encroachments, uneven surfaces and deplorable traffic management, a mode which assures safety is automatically preferred to others

which charges comparable tariffs but cannot assure the minimum travel requisites.

In this context mention may be made of a gradual shift in modal choice that has been observed with respect to users of CB and Minibus services. CB operations have succeeded in wooing a sizable chunk of commuters (83.66% of respondents in the Rs. 1,800-2,200 income range) who were previously using the Minibus in addition to destabilising demand in other income ranges, notably the lower ones. This is a disturbing trend when viewed in the overall context of urban transportation policy for the city. Where modal complementarity in inter-urban operations is vitally essential to control the demand deficit and ensure equitable service benefits to a wider cross section of urban users, activation of competitive modal forces may temporarily ease the problem but never be long term solutions.

The following have been identified from our observations as key factors in promoting inter-urban demand for the CB in Calcutta:

1. Rapid capitalisation on the city's transit deficit situation (approx. 200,000 commuters or 3.64% of total daily transit demand is served by the existing fleet).
2. Gradual decentralisation of services from higher to middle income commuters through fleet and route expansion with simultaneous provisions of necessary travel attributes.
3. Homogeneous function pattern of all the 3 vehicle categories has resulted in total user demand exceeding the combined domestic supply. Migrant units then step in to fill the void. It ultimately creates a potential latent demand which encourages the introduction of additional fleet, thus setting up a chain reaction.
4. Competitive tariff structure with other personalised/specialized categories of RMTM (see Section 9.3.2) while maintaining a better service quality.
5. Absence of vigilance and control over their operations, including long distance transit, has simplified their problems of route selection, trip and frequency monitoring on the expanding transit demand market. As 'leaders' in this oligopolistic set up, entrepreneurs have little difficulty in maximising profits and promoting further demand.

CATEGORY COMPOSITION IN FLEET

Eighteen per cent of the existing fleet is RCB, 39 per cent LCB and 43 per cent ICB respectively. All Bengal permit is the most sought after by all category operators since it ensures flexibility of movement

throughout the state, except in prohibited areas¹⁰. While 45 per cent 50 per cent LCB are engaged in inter-urban services during tourist off-peak period, 85 per cent-90 per cent ICB alongwith 95 per cent-100 per cent RCB ply the city routes in those seasons. During tourist peak period, the interurban supply is maintained on the following pattern: RCB: 95 per cent-100 per cent, LCB: 30 per cent-35 per cent, ICB: 60 per cent-65 per cent. The supply shortfall on both occasions is made up through migrant vehicles whose activities increase considerably in the latter period.

Over the years the demand for RCB services has declined owing to the better passenger facilities offered by the other 2 categories. Instances of minimum mechanical failure also raise the user and operator benefits from LCB/ICB operations. RCB supply, from a 100 per cent RCB : CB ratio in 1965-66, fell to 75 per cent in 1975-76 and finally to 18 per cent in 1983-84.

Demand and Supply

An annual estimated average outflow of 1.325 million tourists is handled by the CB of which 84.9 per cent fall within the tourist season¹¹. ICB rates the highest demand priority followed by LCB with ABP. The general rise in demand for CB over the offpeak seasons lies between October and December. The remaining 25 per cent is scattered between January to March in a declining pattern.

Migrant units numbering between 120-150¹² supplement the domestic fleet. Over the period 1978-1983/84, their frequency of operation has increased, adding to the local completion. Usually they ply on All India Tourist Permits (AITP) which allow them 35 passengers per trip. Rules are bypassed in cooperation with vigilance authorities and illegal trips on units with carrying capacity upto 60 passengers have been on the rise ever since AITP have endorsed restrictions on capacity¹³. Nearly 78 per cent of the total migrant units boost the domestic fleet on inter-urban trips throughout the year. Being operationally elastic the

¹⁰Rule 63, subrule (1), (8) and (9) of the Bengal Motor Vehicle Rules 1940. However, according to a Press Information Release (*vide* the *Statesman*, 29 May 1984), forest and hilly regions of Assam and Meghalaya have been opened to foreign tourist groups provided applications are processed through government recognised Travel agents having approved permits from the offices of the Foreigners Regional Registration Officer/Chief Immigration Officer.

¹¹Primary investigations revealed that during tourist peak seasons, an average 200 CB make an estimated 1.125 million total passenger trips, while off peak estimates put the total at 0.2 million passengers moving out of the city on CB.

¹²Travel agents and primary data.

¹³Seat capacity on All India Tourist Permit restricted to 35. Consequently AITP holder loses passengers for whom the overheads are higher than a 50/60 seater vehicle.

increasing trend in their supply over the period 1979-83/84 has set a latent incentive for further inter urban demand.

Tourist Tariff

Table 8 gives a list of approximate seasonal tariffs charged by CB on tourist trips.

TABLE 8 CB DAILY HIRE CHARGES IN CALCUTTA (1983-84)

<i>Passenger Capacity</i>	<i>Tariff (in Rs.) during:</i>		
	<i>Off-season</i>	<i>Tour Season</i>	<i>Tour Peak Season</i>
45	600	800	950
52	750	900	1100
60	800	1000	1200

The tariff fluctuates between Rs. 800-1200 day per vehicle depending on the season, capacity, urgency of demand and supply. Tariffs by the hour and distance are also effective, varying between Rs. 45-50 per hour and Rs. 3.90-4.50 per km. charged according to the higher revenue yielding denominator but subject to a minimum revenue of Rs. 195. All charges are exclusive of fuel, permit taxes including road, passenger entry, octroi duties, etc., and 'Khoraki' or daily food and service charges of running operators on board. Additional charges are levied by the hour or day for each period exceeding the scheduled programme duration. Permit taxes, however, vary between the states and other entry points¹⁴.

Besides these are the regular long distance trips run on 'special', tourist or no permits in a clandestine manner where rates vary according to the distance, season, demand and the availability of alternate modes. Occasionally the tariffs are lower than the government fares but generally at par. However, higher charges are demanded during crises.

FINANCE

Cost of Vehicle and Operations

The current approximate values of different CB categories have been recorded as follows:

Non Air-Conditioned Deluxe LCB/ICB	: Rs. 3,50,000
" " " Semi Deluxe LCB/ICB	: Rs. 3,00,000

¹⁴Routes being non-nationalised, permit taxes vary between states. While Delhi, Punjab and Haryana states impose no entry tax, other states appropriate taxes either on a lump sum basis or according to travel duration, distance travelled, seats occupied, etc.

Ordinary RCB	: Rs. 2,60,000
Air-Conditioned Deluxe LCB/ICB	: Rs. 5,50,000

Petrol driven LCB/ICB are non-existent today. A maximum of 6 per cent petrol driven RCB exists for use on School trips, which are however, in the process of being converted to diesel power (cost of petrol to diesel being in the ratio 2:1). The engine performance is more economical at 3.5-4 km per litre on inter-urban trips than for the RMTM at a maximum 3 km/litre. Better engine maintenance and regularised payload conditions in CB enhance the engine life and performance. On long distance trips fuel efficiency is higher by 33 per cent approximately.

Normally, after covering 300-000-400,000 kms. major engine repairs or overhauling is required costing the entrepreneur Rs. 8,000-1,2000 in the course of 36-48 months. Besides, a minimum of Rs. 6,000 for LCB/ICB and Rs. 10,000 for RCB is usually earmarked for compulsory annual maintenance and repairs.

Role of Financiers

Almost 90 per cent of the CB in Calcutta has been financed on loans. The remaining 10 per cent belongs to owners previously connected with this trade not as entrepreneurs but as financiers or their agents. The credit market continues to be dominated by private financiers rather than authorised financial institutions, like banks as in the case of Minibus.

Role of Banks: Prior to nationalisation of banks, credit facilities were unobtainable. Loans being unavailable for the CB under the government approved Additional Employment Scheme (AES), banks operate in a more restricted manner compounded by the Reserve Bank of India's (RBI) credit squeeze policy since 1981-82. However, commercial banks approve of loans for 75 per cent finance on total cost of a new unit, subject to the borrower's agreement to finance the remainder making provisions of guarantor and collateral in case of failure. Simple interest @ 18 per cent per annum is charged since April 1, 1983, the amount being payable in 24-36 equal monthly instalments. No other commission or liability charge is levied.

RBI regulations were generally relaxed prior to 1981-82. In 1978, interest rates on loans below Rs. 150,000 were 13 per cent per annum and 15 per cent per annum for the amount exceeding the limit. With the change in the country's general monetary policy, the low rate of returns from loans and the rising instances of outstanding dues from the transport sector, especially by AES beneficiaries, the interest rate was increased to 19 per cent to be ultimately revised after 1982.

Role of Private Financiers : Since banks do not finance used vehicles, the entrepreneur is forced to approach the private money lender for

such loans. They are exclusively committed to money lending for the private transport sector and unrestrained credit is available at inflated rates and terms.

Rates vary between 15 per cent—20 per cent for the new and 25 per cent—30 per cent for the used vehicles at compound interest. 25 per cent borrower capital guarantee is essential though not mandatory since business is conducted through references and the borrower's financial soundness is verified. A refundable 'finance commission' or caution money is levied in addition as a bulwork against overdue payments. Unlike the banks, the loan is provided for 75 per cent of the chassis cost only on new vehicle finance.

The loan is realised through 24-36 equal monthly instalments. The vehicle is liable to be forfeited if payments are overdue for long durations, since the financier's name has been appropriately entered in the Vehicle Registration book. Observations reveal that repayment is usually delayed by 12-18 months so that the 'Finance Commission' remains with the financier and vehicle ownership rarely confiscated.

Certain vehicle manufacturers were revealed as financiers of private capital, bearing 75 per cent of chassis cost @ 15 per cent—18 per cent compound interest with the usual guarantee clauses, provided the entrepreneur purchased the unit from them.

Insurance

A comprehensive policy including the third party claims is mandatory on the entrepreneur. Policies adopted are usually of two types: (1) With unlimited liability clause: payable to the insurance agency @ Rs. 50 / seat / year and claimed on accidents involving death @ Rs. 5,000 per head plus cost of damage. For political or other dignitaries involved in such accidents, the compensation could be stretched further on demand. (2) With limited liability clause: payable @ Rs. 30/seat/year on similar claimant conditions but exclusive of the 'dignitary' clause.

A general 'no claim' discount @ 10 per cent for the first and 15 per cent for consecutive years is granted.

With instances of fatal accidents on illegal long distance trips occurring often due to deliberate negligence, insurance companies have doubled their premium rates since February 1982.

Cost-Revenue Analysis

A cost-revenue analysis has been computed in this section to assess the commercial feasibility of operations under inter-urban transit conditions.

Cost Structures: Table 9 outlines the total annual cost structure of an operating new vehicle at 1983-84 prices, as estimated from the

study. The effective 'life' of a unit has been observed to lie between 7-8 years under the existing road and traffic conditions of the city. Subsequent figures and calculations in Table 9 have been modified accordingly.

TABLE 9 TOTAL ANNUAL OPERATIONAL COST OF A 52 SEATER CB

<i>(Nature of Cost : Fixed)</i>		
<i>Category</i>	<i>Item</i>	<i>Amount (in Rs.)</i>
Licence	1. Registration Fee	19.00
	2. Bengal Motor Vehicles Tax	3120.00
	3. Government Permit (All Bengal)	320.00
	4. Trade Licence	100.00
	5. Certificate of Fitness	30.00
	6. Professional Tax	100.00
Insurance	7. Comprehensive premium	3166.00
	8. Depreciation	41562.00
Wage	9. Driver	9600.00
	10. Conductor/Helper	3600.00
Establishment	11. Establishment charge	18000.00
	12. Garage, Parking Fee, etc.	1200.00
Repayment	13. Interest on Borrowing	39375.00
	14. Repayment on Principal	58333.00
	Total Fixed Cost	278525.00
	<i>Variable</i>	
	1. Diesel	51480.00
	2. Oil and other lubricants	4080.00
	3. Top-up charges	1872.00
	4. Tyre	9750.00
	5. Battery	1000.00
	6. Spare parts and running repairs	5000.00
	7. Major repair	3000.00
	8. Miscellaneous	3000.00
	Total Variable Cost	79182.00
	Total Operating Cost	257707.00

Inter-urban Passenger Tariff: The monthly hire charges of a LCB/ICB varies between Rs. 10,000-12,000 for the deluxe and between Rs. 7,800-10,000 for the non/semi deluxe types. For school trips, the charge per child varies between Rs. 75-120 per month with the contract being annually drawn. For the office going passengers on regular contract terms, the effective travelling cost is in the range of Rs. 0.26-0.30 km/head in a 52 seater LCB/ICB for distances between 25-30 kms covering 26 days in a month.

For 'fugitive' trips a minimum fare of Rs. 50 per cent per month is charged for distances varying between 12-15 kms. The effective

travelling cost is in the range of Rs. 0.14-0.19/km/head, an estimate favourably comparable with the Minibus (@ 0.13/km) and the government special bus (@ Rs. 0.12/km).

Revenue from Inter-urban Trips: Though the cost calculations (in Table 9) have been based on inter-urban operations, the vehicle seldom remains idle for more than 15 days a year or approximately 1.5 days in a month. Total revenue earnings therefore normally exceed the returns from routine office and school trips, the margin made from extra trips on demand based special occasions.

Even the running staff are induced to cooperate on such trips at the cost of compensatory benefits generally expropriated from the user as 'Khoraki'. Fuel costs being borne by the user, the marginal cost of operations on such trips of short distances is usually offset from the fuel saved from earlier scheduled trips. Tax evasion planning has unfortunately made accounts on most extra trips unofficial.

The average annual gross revenue from inter-urban trips amounts to Rs. 354,000 approximately.

Commercial Viability of Inter-urban Operations: Net Revenue or profits = Rs. 354,000 — Rs. 257,707 = Rs. 96,293 per annum. The operation cost per km. travelled and the corresponding revenue earned amount to Rs. 2.75 and Rs. 3.78 respectively leaving the entrepreneur a net profit of Rs. 1.03/km. Monthly and average daily earnings are Rs. 8,000 and Rs. 270 respectively.

Actual profits from all types of trips boost the monthly profit-turnover estimate to Rs. 12,000-15,000 per vehicle or a daily average of Rs. 180-200 above the inter-urban return margin.

The marginal revenue being demonstrably higher than the marginal cost of additional operations as more units are introduced to service the increasing demand, it makes the operations commercially viable. In the absence of proper accounts being maintained, the tax liability is low on the entrepreneur which makes the enterprise more profitable.

Empirical verification of subsequent vehicle purchases reveal an average time margin of 36-42 months. Interest rates and terms on private borrowing being very high, the ability to subsequently invest on an enterprise worth Rs. 3,50,000 emphasises the high output-capital ratio of the investment together with its economic viability of continued short run operations. Long run operations may eventually prove a liability since the high turnover reflects the volume of illegally run operations subject to disciplinary action by the government and ultimate changes in policy decisions.

Long distance trips yield a higher revenue margin if operated on short run durations but higher maintenance and overhead costs together with its susceptibility for disciplinary action offsets the gain in the long run.

MANAGEMENT AND CONTROL

Ownership Pattern

The ownership pattern is highly non-homogeneous in character. An initial classification of entrepreneurs reveals fundamental distinctions in their style of operations, as follows:

1. owners operating under the aegis of Tourist/Travel agencies duly registered under the Shops and Establishments Acts
2. not owning but operating as travel agents.
3. not owning but operating as sub-agents of travel agencies.
4. operating self and leased units.
5. owners but not operators.
6. migrant vehicle owners operating self units.
7. operators managing migrant vehicles on lease.
8. local unregistered organisations leasing domestic/migrant units.

This multiple ownership pattern is a major obstacle in the way of a uniform operational behaviour leading to ignorance and confusion about their actual role and its legitimacy in inter-urban operations. A simplified classification in terms of operational possession of rolling stock may be made as follows:

1. Small Fleet Possessor (SFP): with 2 or less units.
2. Medium Fleet Possessor (MFP): between 2-5 units.
3. Large Fleet Possessor (LFP): above 5 units.

Further investigation on the ownership pattern based on the cost-revenue analysis per additional unit brought into operations, reveals that in the short run, the fifth unit may be considered the point where economics of scale begin to operate in favour of higher returns on investment, the marginal cost of operations on additional units remaining more or less constant. Being a newly introduced mode with the potential to serve a large volume of captive demand, fleet expansion possibilities and chances of benefiting from the economies of scale are because of entrepreneur's increasing capacity to reinvest from self funds after consecutive units. The rise in the more dominant 'fixed' cost factor is lower than the rise in revenue turnover on ensuing units. Following this expansion pattern over a captive demand the entrepreneur gradually assumes the role of a brand leader. Yet absolute monopoly is denied. The pressure created by the volume of captive demand stimulates the supply potential of the possessor but also induces competition from other possessors in their quest for profit maximization. A major advantage of dealing with existing and potential 'leaders' lies in their

ability to substitute promptly unoperational units with alternative stock from the fleet reserves, which further adds to their 'brand image'.

The investigation reveals that nearly 72 per cent of the entrepreneurs belong to the MFP and LFP category with the gaps between existing SFP and MFP and MFP and LFP being reduced since 1980-1983/84. Less than 5 per cent of the sample size turned out to be 'brand leaders'.

Migrant vehicle operations have diluted the 100 per cent local ownership pattern since 1978-79. Their frequency of operations on inter-urban trips is the highest during summer and monsoon. Though a considerable drain on the local revenue potential, their services are very much in demand by local operators owing to their flexibility of operations on all routes including long distance, by virtue of the nature of permit and registration held.

Owner Syndicates or Trade Unions are absent in this trade. Till date, the demand situation offers ample scope for competition and individual fleet expansion. Bilateral negotiations with the government on permit and other operational matters are conducted through *ad hoc* representative bodies who are more keen on personal favours than group solutions.

Operators

Unlike operators of any other mode in the transit system of Calcutta, CB operators on or off board have established good rapport with the owners. More than 65 per cent of running operators are residents of other states. Trade Union activities are rare and they enjoy greater financial and job security than their counterparts operating other NTM, at the same time being highly efficient at their jobs.

Running operators consist of 1 driver and 1 conductor/helper with an additional guide/conductor on tourist trips commuting foreigners. Non-running operators man the establishment duties which include route-vehicle allocation, financial/contract settlements, etc. Nearly 98 per cent of MFP and LFP and 8 to 10 per cent of the SFP maintain their services.

Monthly wages are paid to all the categories of operators. A driver is paid between Rs. 700-900 and a conductor between Rs. 250-300. 'Khoraki' on outstation trips, paid by the user is usually between Rs. 40-50 per day for the driver and Rs. 15-25 per day for the conductor. Since a particular vehicle or staff is never restricted to inter-urban service only, the scope to earn besides the above remuneration always exists. The annual average income of a driver and conductor amounts to Rs. 22,000 and Rs. 11,000 respectively. Leave benefits on appropriate occasions are granted but the lure of extra earnings besides the regular wages makes deliberate absenteeism negligible.

Government Administration

There are 2 principal permit issuing authorities in the state: (1) The Regional Transport Authority (RTA) for each district; (2) The State Transport Authority (STA) under the Home (Transport) Department of the state government.

The All Bengal Tourist Permit and the All India tourist permits are issued by the STA while the regional permits are the RTA's responsibility. Special/Temporary permits to ICB for tourist trips are issued by the STA when inter district or inter state travel is involved. The ICBs are not registered in Calcutta but from RTAs in adjacent regions like Hooghly, Burdwan, Howrah, etc.

Following the conditions laid down by the Motor Vehicles Act, 1939, Section 51 (1) and (2), a 'contract' for a CB entitles the unit to operate for a single consignee on a specified route, the trips and time schedules being mentioned in the contract. The investigation, however, reveals a totally different operational behaviour aiming entirely at profit maximisation, as discussed earlier.

NET SOCIAL BENEFIT

The multifarious functions of the CB which makes it a commercially viable enterprise has been actively abetted by the gradual deterioration in the RMTM services. Transport being a public good, commercial justification for its existence is not a sufficient indicator of its social worth. A net social benefit estimate may be obtained by weighing all social benefits against such costs subject to existing and potential technological, operational, socio-economic and administrative conditions.

The Technology Factor

Over the years Calcutta's urban blight has been characterised by high population density, centralised business and activity centres and diminishing road space. This has adversely affected the physical and economic mobility of the city and its conurbation. A prime determinant is the deterioration of inter-urban transit velocity causing loss of time and money to modal operators and users alike. Besides the usual problems of poor vehicle maintenance, road surface conditions, personnel absenteeism, etc., which result in very low outshedding figures (almost 55 per cent of the organised sector's total fleet strength), incapability to adjust to improved technological conditions with respect to vehicle operations, is a crucial factor of urban transit non-dynamism. In the absence of technological adjustment in transit systems according to the changing urban demand pattern, social costs in the form of operational losses, subsidies and unrealised public loans are on the rise while operational and social benefits continue to diminish.

The underground RTS with its potential to serve 1.6–2 million commuters per day is a positive attempt at systems modernisation leading to increased inter-urban mobility. On the surface, high capacity high velocity modes are urgently required to facilitate not only 'inter-change' movement but accessibility in areas unaffected by the RTS services.

The Minibus which started as a point to accessibility mode serving personalized transit demand has been transformed into a route based RMTM operating under overload conditions within 5-7 years of its inception.

Shortage of high capacity road networks, multiple traffic intersection points, slow moving vehicles, disorganized pedestrian traffic, etc., have made the RMTM travel in Calcutta a slow, uncomfortable and tedious experience resulting in a wider lacuna between social costs and benefits. Since a high mobility rate determines the development pace of urbanisation, mechanically, operationally and economically inefficient modes like the autorickshaw, shuttle taxis, etc., may be considered as short-run measures but ultimate social benefits from such para transit operations will definitely be lower than the social marginal cost of their operations.

The technological advantage of CB operations with their modernised and commercially viable fleet is greater as compared to other modes in current service. Not only have CB adjusted to the current road and traffic conditions while performing better than the 'organised' sector, but their operations and mechanical conditions offer the planner future possibilities of experimenting with these attributes towards a higher social benefit disbursement. Due to their existing mechanical superiority and operational flexibility, future experiments aimed at increasing their accessibility to a wider cross section of society could be effectuated through technological improvement of general systems design and movement.

So long as they remain 'unorganized', profit maximisation will continue to be their main objective. But if the commuters are assured of their priorities and privileges, the ultimate social gain will also tend towards maximisation.

The Operations Factor

Empirically observed movement patterns indicate that being a personalised mode, the CB moves in a near approach to a desire line of travel once it has attained capacity payload. Its present movement pattern conforms to the general North-South flow of the RMTM but a considerable amount of East-South West trips are made on inter-urban routes. The social utility of such movement patterns becomes more prominent since cross-directional RMTM flow is inadequate as compared

to the existing and potential demand.

Though net revenue potential from routes deviated from the maximum passenger demand areas is comparatively less, net social benefits through service to less densely populated areas is high. Equitable distribution of public goods and activity decentralisation are also enhanced in the process.

Following are certain observations from the sample study which highlight the operational importance of CB towards increased social benefits :

1. maximum operations from North based origins (98 per cent cumulative) points to the existing transit deficit in those areas;
2. the Eastern and Southern parts of the city being pre-dominantly residential areas, existing interface between landuse and transportation is low which explains high CB movement (84% and 90%) in those areas;
3. though access to the CBD and its core is provided by a multitude of mass and personalised travel modes, a high demand deficit exists. The maximum density of CB movement (72%) towards destinations within the specified area implies a demand based desire line travel pattern enhancing social gains through savings on time and cost.
4. a high incidence of cumulative cross-directional CB movement (57%) points to the inadequacies of through transit facilities and the RMTM supply at traffic interchange points (See Table 4).

The Socio-Economic Factor

A changing trend in commuter category from very high to middle income earners is apparent (section 6). At tariffs comparable to Minibus and 'Special' bus rates (Section 9.3.2). CB travel incremental user cost is willingly borne on inter-urban trips. On long distance trips, passengers are increasingly patronising the CB caring little or more for their illegal operational status. Adherence to inter-urban travel attributes such as punctuality, accessibility and dependability have resulted in a demand shift from other mass and personalised modes in favour of the CB travel.

During monsoon, while RMTM often maintains a skeletal or no service, CB outshedding figures remain constant on scheduled trips while extra trips are also made on demand (section 5.2). With the negative feedback on operational performances of the 'organized' sector on the rise, demand for CB in areas inadequately covered by RMTM explains the rise in cross-directional transit demand. The subsequent rise in net social welfare is highlighted when viewed in the perspective of identical transit infra-structural and other operational facilities existent

for all modal operations, with no accruing of extra social costs exclusively for CB movement.

On the whole, CB inter-urban operations though illegally conducted from the administrative viewpoint, have been increasingly serving a wide cross-section of society irrespective of travel conditions and fleet expansion pattern is a further indication of the increase in social benefits received.

The Administration Factor

Operational constraints administratively endorsed through Sections 50, 51 and 29 of the Motor Vehicles Act, 1939, on inter-urban, long distance and migrant CB movement have since had very little impact. Conduction of actual operations under surreptitious conditions has given the entrepreneur little opportunity to realise the social benefits of the service offered, other than taking advantage of legal and administrative loop holes for maximising profits

To overall social disadvantage, comfort and safety attributes on long distance passenger trips are ignored. Since 1982, special permits for inter regional trips to ICB, the most economical of the CB categories to the operator, have been rescinded but inter state travel permits are granted. As a result long distance inter-state and inter-regional trips continue with little regard for jurisdictional constraints.

The present attitude of the authorities has confused the commuters since no alternative government authorised service is regularly available on demand in most cases, and government red tapeism in securing extra services on time drives them into further captivity of CB operators. Even more confusing is the government's agreement on crisis occasions to allow these illegal operations when authorised modes fall short of demand or are disrupted. The instinctive reaction of operators turns towards profit maximization but though social interests are served in the short run, the reciprocal cost certainly rises.

The present allocation pattern of rolling stock over different trips and territories has been constructed in an 'unorganised' manner, according to the government, but is far from arbitrary as social and economic performance parameters indicate. Since administrative effectiveness on CB operations is confusing, it may be opined that failing to utilise the services of CB in a complementary manner with other mass and personalised transit units, the state has indirectly encouraged competition within the total system through its inability to check rising illegal operations. Had the administration functioned more efficiently, aggregate social benefits would definitely be higher.

SUMMARY OF OBSERVATIONS

A list of important observations from various sections of the analysis follows:

1. Approximately 18 per cent, 39 per cent and 43 per cent of the existing CB fleet are RCB, LCB and ICB respectively. Demand for ICB is the highest owing to greater capacity reducing per person transit cost.
2. In actual operations, there is no distinction between the existing inter-urban services of all CB categories but potential demand for ICB and LCB are higher than RCB.
3. Migrant units operate throughout the year but their inter-urban operations are the highest during summer and monsoon.
4. A unit makes 4-4.5 total trips and 1,85,000-2,00,000 passenger trips per day @ 26 days a month on inter-urban routes (3.64% of estimated city transit demand).
5. Approximate frequency ratios between North-South and East-South West movement is 8:5; between North-South/South West and East-South West/South is 2:1.
6. Cumulative flow estimates indicate a high percentage of cross-directional movement on inter-urban routes.
7. Maximum inter-urban service demand is from monthly income earners of Rs. 1,800 and above. With fleet and route expansion, potential demand from passengers of lower income ranges is high.
8. Punctuality, Accessibility and Dependability rank the highest and respectively in order of importance among CB commuters (of sample).
9. CB service have accelerated inter-mode competition in the city. 84 per cent of the respondents in the Rs. 1,800-2,000 income range have switched from Minibus in favour of CB travel.
10. Inter-urban effective user cost ranges between Rs. 0.26-0.30 per km. per person for 25-30 km. and Rs. 0.14-0.19 per km. per person for 12-15 kms. total trip distances.
11. Services to hitherto unapproached areas and under all climatic conditions have increased since 1978-79.
12. An average operation profit of Rs. 1.03/passenger km. or Rs. 0.02/passenger/km makes the mode commercially viable.
13. Almost 90 per cent financing is through private loans at exorbitant interest rates. Though repayment lags behind by an average 12-18 months period, absolute nonpayment of dues is rare.
14. Ownership pattern is non-homogeneous. 'Brand leaders' tend

to monopolise operations but a high rate of intra unit competition exists in the inter-urban and especially the long distance transit market.

15. Inappropriate administrative policies have increased the frequencies of 'fugitive' inter-urban and long distance trips.

16. Considering the illegal operational status of CB on inter-urban and long distance transit, net social benefits from their aggregate functions have so far been high. But in the long run if profit maximisation through continued clandestine operations be their objective at the cost of the organised sector, social costs would run high with the possibility of offsetting aggregate social benefits.

SUGGESTIONS

The following suggestions, aimed at improving certain aspects of CB movement on inter-urban and long distance trips, are forwarded:

Operations

1. Barring a legislative ban on all CB operations in the city, 'fugitive' trips cannot be prevented under the existing demand deficit conditions. Since user satisfaction on inter-urban operations is progressively high, its services ought to be complemented with the RMTM flow on selected routes; but on a short run basis. Liberalisation of permit terms and conditions on cross-directional routes and those involving interchange movement especially from North, East and South West origins will considerably ease the transit deficit till the RMTM services resume satisfactory operations.
2. A maximum number of existing RMTM routes serve other areas of the Calcutta Metropolitan District (CMD) which minimises per person utility from such service. As a feeder service to the city RMTM, paratransit functions of ICB may be utilised in the peripheral areas by restricting their entry into the city. This would increase vehicle accessibility per person while simultaneously reduce city congestion and the centripetal pull of urban forces towards the centralization of activities within the city.
3. Calcutta's spatial linkage with satellite towns and urban areas where existing road networks permit high velocity movement may be enhanced by allowing the CB to operate as connecting modes.
4. Encouragement to small and medium fleet operators to function on selected inter-urban and feeder trips and large fleet operators on long distance trips would raise the level of competition and

subsequently rationalise the service.

5. Fare rationalization on long distance routes is urgently required. The government tariff being generally higher, encourages unauthorised operations which subsequently affects passenger safety and other travel attributes.

Administrative

6. All 'running' operations on inter-urban routes, including personal management functions should remain the operator's responsibility, subject to government approval. Other operational aspects like route selection, vehicle and trip-frequency allocation, etc., should be the government's exclusive prerogative.
7. Nationalisation of inter-state routes would reduce illegal operations. Simultaneously, where resource constraints prevent the government from directly satisfying required transit demand, authorised CB movement subject to operational control as in suggestion 6 would enhance overall social benefits.
8. Area licensing and other fiscal measures would discourage unchecked movement of migrant units on inter-urban routes.
9. Extension of bank finance facilities on regularised terms and conditions would act as a control on both approved and illegal operations.
10. Coordination between permit issuing and vigilance authorities, heavy penalty terms for defaulters with suitable amendments to existing rules governing CB movement are essential prerequisites for future control of authorised and illegal operations.

CONCLUSION

In a resource scarce economy, a long term transportation policy based on maximising social welfare, has to depend on complementary modal operations. The CB is a commercially viable mode technologically suited for future high velocity mass transit demand. The existing RMTM services are under excruciating pressure from a high transit demand situation which tends to worsen with diminishing mobility during peak hours.

In this context, the superimposition of the CB on the traffic-scape of Calcutta may be justified on its economic and social rationale. The government may take notice of some of the observations and suggestions presented in this paper for a more dynamic pattern of urban transit flow in the city. Further exercises on operational integration with other mass and personalised transit modes are urgently required in the interests of the captive commuters of Calcutta. □

Financing Municipal Governments: The Case of Nigerian Local Government Councils

I. B. BELLO-IMAM

MUNICIPAL OR Local Governments have statutorily assigned functions while a few acquire additional functions through time. In order to execute these functions efficiently and effectively, they must be able to raise the necessary finance. Concurrently, local governments or municipal governments must also set their priorities in a way that they can match their purposes of existence. In line with our argument elsewhere, the financial resources available to any local or municipal government should be determined by the functions and responsibilities it has to meet both of which must tally with the purposes and (to a lesser degree) administrative structure of the particular local or municipal government. Evidently, therefore, financial arrangement is not an end in itself but a means of achieving some social and political purposes within a given social milieu which in this case is the local or municipal government area.

The 1976 structural reorganisation of local government in Nigeria reduced the innumerable number of local government units in the country to 301 units of various sizes. Subsequently, the 1979 Nigerian constitution (part of which has been suspended since 1984) stipulates that local government shall be the third tier of government in the country. But during the Second Republic in Nigeria, there was an arbitrary proliferation of local governments principally to score political points. Consequently, the total number was catapulted from 301 to about 1000 units all over the country following the creation of new units by the state governments. As a result of the manner in which these local government units were created, most of them remained mere structural decorations at the periphery as the federal government did not recognise them for 'revenue allocation'.

What is 'revenue allocation' within the Nigerian political system? It is a statutory formula for sharing out all centrally collected revenue to

the three levels of government in the country. In a sense, therefore, it is the form of federal government's general grant to local governments in Nigeria. Under this revenue allocation formula, local governments are entitled to 10 per cent of the revenue accruable to the federal government from all sources and 10 per cent of the internally generated revenue of the state governments.¹ The internally generated revenue of each of the local government units is very meagre. Consequently, the local governments are in a situation where they depend almost entirely on the Federal and state governments for their finances.

But in actual fact, whereas the federal government has remained paternal in the finances of the local government councils, the state governments have remained infanticidal as they hardly give what is expected of them to the Councils. As a result of this trend, the finances of local government councils have been very unstable. A manifestation of this financial instability is that when the federal government is buoyant and the state governments play supportive and complementary roles, the local governments are most often buoyant but when the reverse is the case, they face pecuniary distress.

Another rather unfortunate dimension of the financial instability of local governments in Nigeria is the unwillingness of people to pay their local taxes, fees and charges and rates while concurrently but increasingly demanding modern and better services from this level of government.

If this level of government must remain an effective third-tier of government in practice, there is need for local government to have some reasonable independent resource base outside the central government grants. Towards this end, the following basic questions can be raised, to which answers will point to the direction to follow.

1. What are the known existing sources of revenue open to local governments?
2. How economically viable are the sources both individually and comparatively?
3. What are the factors hindering the improvement of the revenue base of local government?
4. How can the limitations be overcome?
5. What potential revenue sources are open to local governments which they could tap to improve their capacity in their effort to deliver the goods and services which the citizens increasingly demand?

¹Federal Republic of Nigeria, *Revenue Allocation Act of 1981*. This gives details of the prevailing revenue allocation formula.

Before we set out to answer these questions, it must be observed that this study is essentially a heuristic one which might later be complemented with specific case studies. Yet again, it must be noted that since local government is a sub-system of the national sovereign government, the sources of revenue open to it are those allowed or granted to it by the central government at any point in time.

THE VARIOUS SOURCES OF REVENUE AT THE LOCAL GOVERNMENT LEVEL AND THEIR LIMITATIONS.

There are five easily discernible sources of revenue open to local governments. These are grants which take various forms, local tax which is Poll Tax in Nigeria, Rates or Property tax, fees and charges and loans. Each of them will next be examined along with its limitations.

Grants

Grants in this context is financial assistance given by the central to local government either for specific or general provision of services. central government gives grants to enable local governments undertake new functions or to assist it with the resultant financial burden from assigned function(s). In a sense, therefore, central government gives grants to local governments in an attempt to reduce the local cost of providing a service. Two types of grants are easily discernible. These are the 'specific' and 'general' or 'block grants'.

1. The specific grants are given to local governments to enable them execute specific function(s) and they are often expressed in percentages of the total cost borne by the grant. Sometimes, a unit basis which stipulates so much per element (e.g., house or children educated) is used for its distribution. The 'general' or 'block grant' which is usually a contribution to local rate funds or local tax efforts by the central government is not tied in any way to particular service provision but it is different from revenue sharing in some Federal States. It can be given to assist either the poorest or an isolated local government. Yet again it can be given to a particular local government for some specific reasons or given to all local governments as a general subsidy.

Having said that, our next logical question is why does central government give grants to local authorities. Hart² has attempted an

²Ivor Hart Seeley, *Local Government Explained*, Macmillan, London, 1978, p. 125.

answer to this question. According to him, four main reasons underlie the practice. These are:

- (i) to stimulate a new service;
- (ii) to relieve the increased burden of rates resulting from new services;
- (iii) to compensate local authorities for loss of income arising from attempts to cure defects in the law of rating by giving relief to certain classes of rate-payers; and
- (iv) to attempt to equalise the financial resources of local authorities and to ensure their capacity for maintaining a common standard of services throughout the country.

The first two reasons are most usually associated with specific grants while the latter two are associated with general grants.

Before 1976, the federal government in Nigeria was not in any way concerned with local government. This is because local government started as a regional and later as a state government subject which is still the practice till date. As a result of this practice, the regional and later state governments gave to the local governments a combination of two different types of grants. However, the number of services which were grant-aided varied from one part of the country to the other. With time, the proportionate share of grants in the total resources of local governments became very small and particularly small in the northern part of the country. Of the four reasons for giving grants to local governments outlined above, only the first appealed to the state governments, *i.e.*, they gave grants largely to stimulate certain new services.

Shortly after the creation of the present local government structure in Nigeria, both the federal and state governments started to give both specific and general grants to the local governments. The most notable form of specific grant given by the federal to the local government was that for the execution of "Universal Primary Education" (UPE) scheme. In a sense, therefore, federal government grants in this area were usually tied to particular expenditure programmes as the UPE was a Federal policy which local government were asked to execute. With this type of central government grant, the Federal government achieved 'stimulation of new services' at the periphery and concurrently ensured that common standards of services were maintained throughout the country. However, state governments still give specific grants to local governments. This first in this regard is given for the execution of specific projects at the local level. The second type is a 'matching grant' which is given as an incentive for the performance of certain functions. An example of this type of grant is the one given to local governments for their efficiency in the

collection of local taxes, fees and charges.

Since the inception of the 1976 local government system on a nation-wide basis, the federal and state governments became statutorily obliged to give a special type of general grant to local governments. The formula of this 'statutory allocation' entitles local governments to 10 per cent of the federally collected revenue and 10 per cent of the internally generated revenue of the state governments. Like in all federal systems of government, this issue of revenue allocation is very politicised in Nigeria. The persistent questions on it have been 'who gets what when and how'. Consequently, the formula has tended to vary with the various political actors at the centre.

Another ugly dimension of the central grants is that they are handed over to the various state governments to distribute for their respective local government units. Although there is a well articulated formula³ for this purpose, most states have, on many occasions, misappropriated the allocation for their local governments and those that do so, often delay for months. Because the budget of local governments are based on their financial expectation from the central government, most services including payment of personal emoluments, often suffer in such circumstances. Hence we regard state governments' role in this regard as infanticidal to local governments. Although the federal government has on many occasions objected to this practice of some states, especially those that were politically opposed to the centre during the Second Republic, nothing has been achieved positively in this regard simply because local government is statutorily a state subject. In practice therefore, the finances of local governments have greatly depended on both the political climate and economic buoyancy of the state governments.

What is the real impact of these factors on the activities of local governments in Nigeria? A relative and comparative examination of grants both *vis-a-vis* other sources of revenue and the practice in other countries like Britain will better explain the situation.

For instance, in Britain according to Raine and Greenwood⁴ as shown in Table 1, about 44.2 per cent of the revenue of local authorities in England and Wales comes from grants [both Rate Support Grant (RSG) and specific grants], about 20.9 per cent comes from Fees, charges, Sales and Interest Receipts while the remaining 34.9 per cent

³The prevailing revenue allocation formula in Lagos State, for instances is based on the following formula:

- (i) 40 per cent—population,
- (ii) 40 per cent—equality,
- (iii) 10 per cent—internally generated revenue efforts of the Councils, and
- (iv) 10 per cent—social services provided by the Councils.

⁴Raine and R. Greenwood, *Finance for the Non-Financial Manager*, Institute of Local Government Studies, Birmingham, England, 1985, p. 18.

comes from Rates. Although there is a clear evidence from these figures that local authorities in this part of the world still rely very much on the central government grants, there is an obvious independent resource base for them. For instance, as much as 55.8 per cent is internally raised (Table 1). So if financial independence has positive effect on local freedom of action, one can then argue that the local authorities would be reasonably free to initiate their local projects and programmes, all other things being equal.

The picture in Nigeria is quite different. Taking Bendel state local governments as our example before the nation-wide reform of 1976, the revenue pattern of the local councils was such that 3 per cent was realised from grants while the remaining 97 per cent came from Rates, poll tax and fees and charges combined. This suggests that there was much financial autonomy at the local level before 1976 as most of the revenues were locally raised. This is not true as the trend was much more of an accident than design.

TABLE 1 LOCAL AUTHORITY REVENUE SOURCES IN BRITAIN

(i) Central Government Grant (RSG and Specific grant)	— 44.2% (External)
(ii) Fees and charges and other interest Receipts	— 20.9% (Internal)
(iii) Rates	— 34.9%
TOTAL PERCENTAGE	100

SOURCE: J. Raine, and R. Greenwood, "Finance for the Non-Financial Manager", *ILGS*, Birmingham, England, 1985, p. 18.

But as from 1976, the financial fortunes of local governments in Bendel state changed tremendously. For instance, for the financial year 1977-78, about 22 per cent was internally generated while the remaining 78 per cent came as federal and state governments' grants⁵. In the early 1980s this trend was further exacerbated by the inability of the state government to meet its statutory allocation to local governments. Table 2 clearly shows the pattern of allocation in Bendel state for 1981 and 1982. Virtually all the revenue of local government councils in the state was derived from statutory allocation. Bendel state's allocation became so high, *vis-a-vis*, other sources of revenue because it is the biggest oil producing state and one of the factors of allocation-derivation favoured the state.

⁵I.B. Bello-Imam, The data quoted in respect of Bendel State of Nigeria was personally collected in 1980 for another purpose.

Nonetheless in some rich states like Lagos, instead of virtual dependence on statutory allocation, they depend on internally generated revenue. Refer to Table 3 for a clearer picture of this trend shown in Lagos state over-time. The unfolding picture is that about between 40 and 60 per cent of the revenue comes from the state and federal governments while the remainder is internally generated. Local governments in such states usually have more independence than those that rely on statutory allocation.

Most unfortunately, some state governments have stood on the way of the smooth operation of the revenue allocation formula. This practice was very prevalent during the Second Republic.

It usually took the form of either misappropriation or total confiscation of the federal allocation. For instance, in Ondo state which had a total disburseable allocation of N 291,509,223.93k between 1981-1984, only a some of N 60,638,007.74k was allocated directly to local governments to the extent that some local governments were unable to pay the salaries of their staff⁶. If salaries were not paid, it means that no project could be embarked upon. Ondo state was not alone in this practice. It was virtually nation-wide during the Second Republic.

Closely related to the above problem was that of local governments being tied to the apron strings of their respective state governments during the Second Republic as they were their *de facto* financiers. This was easily manifested in the limitations placed on their local freedom of action by the state governments. Where a particular local government Council or the whole Councils in the state became or appeared to be a cog in the wishes and aspirations of the state government, the elected Council(s) were usually dissolved and replaced with political stooges of the state apparatus. The incessant invocation of this power to dissolve or abolish Council(s) brought into question whether local government was actually a third-tier of government as stipulated by the 1979 Constitution of the Federal Republic of Nigeria or a mere agent of the state apparatus in the periphery.

Yet again, because of the common knowledge that financial power has tremendous influence on political power and because statutory allocation is not within the control of local governments, the issue has been grossly politicised in Nigeria like in most countries where it operates. For instance, eight national 'ad hoc' Committees have been appointed between 1958 and 1980 to review the basis of sharing the 'national cake' in Nigeria. Irrespective of this fact, Nigeria has not found the answer to the problem. Bird's assertion on the complexity

⁶I.B. Bello-Imam, This data was collected from one of the sessions during the Resource Mobilisation Workshop for Local Government in Nigeria, held in ASCON, Topo, Badagry between July, 7-13 1985.

TABLE 2 PERCENTAGE OF EACH SOURCE OF REVENUE OF LOCAL GOVERNMENT IN BENDEL STATE, ON TOTAL REVENUE—
1981 AND 1982

(In per cent)

Local government councils	1981			1982		
	Internal revenue	State statutory allocation	Federal statutory allocation	Total of state and Federal allocation	Internal revenue	Federal statutory allocation
Agbazillo	2.4	2.4	96.2	97.6	3.1	96.9
Akoko-Edo	4.3	1.4	94.3	95.7	3.1	96.9
Aniocha	5.5	1.3	93.2	94.5	4.3	95.7
Bomadi	1.0	1.4	97.6	99.0	0.9	99.1
Burutu	1.4	1.4	97.2	98.6	3.8	96.2
Ethiope	3.2	1.4	95.4	96.8	3.7	96.3
Etsako	4.6	1.4	94.0	95.4	3.4	96.6
Ika	12.5	1.2	86.3	87.5	7.5	92.5
Isoko	5.7	1.3	93.0	94.3	4.2	95.8
Ndokwa	6.5	1.3	92.2	93.5	4.0	96.0
Okpe	12.7	1.9	85.4	86.3	9.5	90.5
Okpebho	2.7	1.4	95.9	97.3	1.9	98.1
Oredo	25.5	1.1	73.4	74.5	22.5	77.5
Orhionmwon	3.6	1.4	95.0	96.4	2.4	97.6
Oshimili	7.3	1.3	91.4	92.7	5.9	94.1
Ovia	3.2	1.4	95.4	96.8	1.2	98.8
Owan	2.9	1.4	95.7	97.1	2.1	97.9
Ughelli	5.0	1.3	93.7	95.0	3.9	96.1
Warri	27.9	1.0	71.1	72.1	34.4	65.6

NOTE : There were no state allocations in 1982.

SOURCE : Annual Financial Statements and Estimates rendered by Local Governments to the Ministry of Local Government in the State in Bendel State Digest of Local Government Statistics No. I, 1985.

of inter-governmental transfers gives credence to its universal nature :

explicit, objective criteria for inter-governmental transfers are largely non-existent in developing countries, they depend on factors which are absent from resource allocation—clear national objectives, political neutrality, and a competent administration working from an adequate statistical base.

All the formulae operated in Nigeria till date have been replete with some measure of political preference. In fact, political values have tended to predominate the formulae and actual allocation or disbursement of the funds. As stated above, the allocation has been

TABLE 3 LAGOS STATE GOVERNMENT
SUMMARY OF LOCAL GOVERNMENT REVENUE (ACTUAL) 1980-1984

	1980	Per cent	1981	Per cent	1982	Per cent	1983	Per cent	1984	Per cent
1. Federal Statutory Grants	9,054,763.32	35.94	31,694,729.20	42.33	46,419,040.37	50.45	34,490,531.45	36.37	45,296,167.12	53.37
2. State Statutory Grants	1,229,440.89	4.89 (40.83)	13,275,823.70	17.73 (60.16)	11,502,107.90	12.50 (62.95)	23,288,795.10	24.56 (60.93)	40,815,000.00	00.17 (53.584)
3. General Rates	5,847,440.70	23.20	15,919,329.39	21.26	17,683,789.79	19.22	17,092,757.15	18.02	18,697,073.10	22.11
4. Liquor Licence Fees	767,436.91	3.04	2,091,945.06	2.79	2,076,342.68	2.25	1,866,664.70	1.96	2,307,285.73	2.72
5. Fees and Charges and other Sources	8,294,707.27	32.92 (59.16)	11,885,973.06	15.87 (39.92)	14,319,122.55	15.56 (37.03)	18,082,818.13	19.07 (39.05)	18,237,529.29	21.56 (46.39)
	14,909,584.85		29,897,247.51		34,071,254.18		37,042,240.14		48,241,888.12	
TOTAL	25,193,789.06		74,867,800.41		91,992,402.65		94,821,566.73		84,553,055.24	

SOURCE: Returns from the eight Local Government Councils in the state.

unreliable, irregular and in some cases not implemented. Hence we conclude the discussion on grants and statutory allocation that as presently administered in Nigeria, they are apparently efficient but obviously grossly ineffective.

Rates

Rates are a property tax levied on the value of buildings and land or on land only within the area of authority of a local government.

For any occupation to be rateable, it must embrace legal possession, permanence and some benefit. Buildings which are rated by local governments are called 'hereditaments'. The amount which falls due in respect of any property or hereditament depends both on its assessed rateable value and by the rate on each unit of assessed value charged by the local government⁷.

In Nigeria (before the nationwide local government reform of 1976), there were two forms of property tax. These were the rates on selected buildings in some selected towns and cities and forestry fees and royalties on forest and its products. As we have shown in previous studies⁸, it was quite an insignificant source of local revenue. A function of this trend must have been the apparent lack of appreciation of the fact that taxation power has some positive effect on expenditure pattern. Perhaps, this was not the only reason. The drawing up of list of properties and determining its value is a technically demanding procedure which none of the levels of government could easily support. Above all, the sacred attachment to land by Nigerians could have greatly contributed to the lack of emphasis on Rates as a source of revenue at the local level.

However, as from 1976, the Guidelines for Local Government Reforms⁹ in Nigeria stipulated that property tax should be introduced where it was not in existence and extended where it was only partially operating. This revenue source was to start with urban centres from where it was to be progressively extended to the rural areas. According to the local government reforms, this source of revenue was to be operated under the following conditions:

- (i) That for property rating to be effective, it needs not only to be comprehensive but also to up-date its valuation, with quinquen-

⁷C.A. Cross, *Principles of Local Government Laws*, Sweet and Maxwell, London, 1914.

⁸I. B. Bello-Imam, "Revenue Sources at the Local Government Level in Nigeria and their Limitations", Paper presented at the *Resource Mobilisation Workshop for Local Government in Nigeria*, ASCON, Topo, Badagry, July 7-13, 1985.

⁹Federal Republic of Nigeria, *Guidelines for Local Government Reform*, Government Printer, Kaduna, August 1976, p. 13.

nial revaluation especially in times of inflation.

- (ii) That state governments should treat the increasing of valuation capacity as of utmost importance.
- (iii) That the whole yield of property rates, including subventions in lieu of rates on governments' property should accrue to local governments.
- (iv) That undeveloped plots used for commercial purposes should attract appropriate levies whether by rating or by licensing of their use.
- (v) That all 'development' capitation of other forms of general rates should be entirely the revenues of local governments.

In reality, this source of revenue to Local Government Councils in Nigeria has not shown any significant change since 1976. From the statistical figures given in Table 2 of this paper, it is deductable that this source accounts for about 7 per cent in the Rural areas while there is some measure of improvement in the Municipal Councils if Oredo and Warri are taken as examples of this. This is given added substance in Table 3 where the revenue accruable from this source stands at the average of about 22 per cent over a period of five years in the state. It should be recalled that Lagos is the seat of the government of the whole country and by extension, the most urban.

Irrespective of its minimal contribution to the revenue of local governments in the country; especially in the rural local government Councils, there is no denying the fact that because it is a tax on visible wealth, it has enormous advantages over other local sources of revenue. One of these advantages is its simplicity. Yet again, it is crudely equitable as the object of taxation is easily identifiable and immovable. However, rates have a number of disadvantages.

First, Rates as a source of revenue is obviously regressive as it is based on a number of assumptions which are not always valid. For instance, it is erroneously assumed that the value of property is a good indicator of the ability of the occupier to pay. This is sometimes not the case. For example, if a citizen spends more of his money on housing instead of on a car or some other conspicuous consumption goods, he pays more rates than he would have done if he had chosen a more modest residence. There is also an implied assumption that the more expensive a property is the more demand its occupiers will make on local government services. Again, this is not always true as a man in a small house may put out two or more dustbins a week for refuse collection while another man in a five bed room detached house may put out one or none at all for a week¹⁰. Nonetheless, the present

¹⁰N.P. Hepworth, *The Finance of Local Government* (7th Edition), George Allen & Unwin, London, 1984, p. 69-104

way of levying rates does not take account of these facts.

Secondly, rate is not a very buoyant source of income for local governments especially in Britain where it has been extensively used. Attempts made by both the central and the local governments to make it elastic is always resisted by the people. The recent (1985) opposition to the outcome of the revaluation of property tax or rates in Scotland gives credence to this fact.

Thirdly, the impact of rates is always very obvious to the payer. Against this demerit is the argument of the protagonists that it is better to make a tax perceptible, *i.e.*, more open so that the payer would know what he is paying and why he is paying it. Unfortunately, its openness makes it very unpopular as most people are more willing to pay a 'hidden tax' than an obvious one. For instance, although the VAT in UK and other forms of sales tax in other part of the world add to the cost of any good or service, people are more willing to pay them and by extension hardly complain about it. This is because VAT's incidence is effective in a relatively unobtrusive way.

Despite these disadvantages and its unpopularity, Rate has remained one of the most reliable and buoyant local source of revenue in most developed world. So, although there are other practical limitations to its operation in Nigeria, it is a source of revenue that should be emphasised in the country. The first limitation on the way of Rates in Nigeria is that not all Nigerians own property in house form. Majority do not, as many adults and their families live together in the same house because of the extended family system operating in most communities. However, this practice is much more pronounced in the rural areas than in urban centres. More often than not, the stock of existing property is not known and where this is known, value is difficult to attach. Local governments lack the calibre of staff that can carry out any meaningful valuation of property. Above all, the central government (federal or state) have never seriously thought of it.

Rates in practice is replete with inelasticity, inequity, political sensitivity and infrequent valuation which make it difficult to respond to the challenges of inflation and growth. As a source of revenue in Nigeria, its efficiency and effectiveness are seriously called into question again because of excessive evasion and avoidance.

Nonetheless, local governments like those in Nigeria that are committed to the fulfilment of the purposes of 'grassroot democracy' and 'local freedom' inevitably have to rely greatly on a local resource base one of which is rates.

Fees and Charges

The decision as to where any goods or service shall be taxed or

priced depends purely on whether it is a 'public' or 'private' good. This is because private goods or services are exclusive to their owners/users while public goods and services have some element of universal benefit. Subsequently, the former is usually charged on the basis of affordability while the latter is taxed. So although goods and services are not often purely private or public, this basic principle remains.

When any good or service is regarded as a private one, a charge or fee is levied on it. At the local level fees and charges fall into two main categories:

1. Those levied by local governments but fixed at the recommended prices of the central government. For example, in Britain this takes the form of school meals, dog licences, firearms fees and theatre, licence fees. In such services, minimum fees are set centrally, while the local governments are freer to decide the level of charge above the minimum.
2. Those that are fixed by the local governments themselves either with or without the consent of the central government. The common example of this in Britain is the fee for collection of trade refuse.

In actual fact, fees and charges are not generally intended to raise revenue but to permit the regulation of a particular service or activity. However, an opposite school of thought disagrees with this viewpoint. But once fees and charges are permitted by the central government, the local governments are free to fix their prices on them.

In Nigeria, fees and charges take the form of bicycle licences, canoes and liquor licences and slaughter house fees, to name a few. Before the nation-wide local government reform of 1976, this was one of the most significant and buoyant sources to most municipal governments. For example, in Oredo local government council, which is essentially an urban Council, this source accounted for 59 and 38 per cent respectively in the financial years of 1974-75 and 1975-76 respectively. Although the quantum of money realised from this source was relatively meagre, it was the most significant of all the sources of revenue open to the Council¹¹. However, in rural local government councils, this source was not as spectacular. Why was this so? One of the greatest weaknesses of fees and charges in Nigeria was their abysmally low rate and yield as they were not annually reviewed to take account of inflation. Little wonder, the 'Guidelines' for the local government reform regretted that:

in some cases, the charges have remained unamended for many

¹¹I.B. Bello-Imam, The figures quoted in this section were collected by the author from Oredo Local Government Council in 1980 for another purpose.

years and are (therefore) unrealistically low¹².

In a bid to correct this trend, the federal government suggested that charges should be harmonised not only between the various local governments within a state, but also between neighbouring states while consultations on their increase should be initiated by the Ministries of local government. The guidelines also recommended that where the cost of collecting the fees and charges was out of proportion to the total revenue realised from the same, it should be abolished except for reasons of control unconnected with revenue raising.

What was the trend of this source of revenue since the 1976 reform? Shortly after the reform not much dramatic change was noticed in the Council's revenue in relation to this source. For example, in Akoko-Edo Local Government Council of Bendel State, (for the year 1977-78), this source accounted for about 2.4 per cent of the total revenue.¹³ Obviously this source was still very insignificant in the Council's financial source. However, in municipal councils like those in Lagos state, although the central grant (both specific and general) has taken the prime position as the revenue base of local government Councils since the early 1980s as shown in Table 3, this source accounted for about 20 per cent on the average over the five years covered.

Nonetheless, as presently operated, there appears to be no real pressure on people to pay fees and charges due principally to their politicisation. In some cases, there is no clear evidence of how much has been collected. Although fees and charges can be a reliable source of revenue but as presently administered in Nigeria, its adequacy and elasticity are very minimal as the source has hardly responded to inflation and other socio-economic variables.

Concurrently, there is tremendous evasion and alleged fraud on the part of the collectors. Yet again, the proportion of revenue realised from this source compared to the resources devoted to its assessment and collection shows that the former is abysmally low and, therefore, uneconomic while the latter is very high. So, as a revenue source, its efficiency and effectiveness is virtually nil in contemporary Nigerian Local Government Councils.

Poll Tax

Poll tax in Nigeria is a local tax levied on every self-employed adult male in the country whose annual income is less than N 600.00. In actual fact, it is as old as taxation in Nigeria. In some sense, therefore, poll tax has been a source of revenue to local government Councils

¹²Federal Republic of Nigeria, *op. cit.*, p. 4.

¹³I. B. Bello-Imam, The data used in this section was collected from AKOKO-Edo Local Government Council in 1980 for another purpose.

since the local government came into being.

Before 1976, and more specifically since 1973-74, poll tax was the only uniform type of tax in Nigeria. By extension, before the statutory allocation took over the dominance of the resource base of local government Councils, it was one of the most reliable, buoyant and independent sources of revenue to this level of government. For instance, in Oredo Local Government Council, this source accounted for as much as 33 and 27 per cent respectively in the consecutive years of 1974-75 and 1975-76. This means that it was only second to fees and charges in this municipal government Council.

But since 1976, the source has started to decline on a gradual basis. For instance, in Akoko-Edo Local Government Council, the source accounted for only 0.3 per cent of the annual total revenue of the Council. So, as a result of its low yield, the then civilian Head of State, (President Shehu Shagari) decided to abolish the tax all over the country without any substitute in 1980. Whereas some people, mostly party loyalists of the then President supported this measure, some others disagreed with him on the ground that people cannot consistently expect services from government without a concomitant preparedness to contribute to their provision and maintenance.

Subsequently, some states implemented the President's order while some others, especially states in the western axis of the country continued to levy the poll tax.

After the overthrow of the civilians in December 1983 by the Armed Forces, one of their first measures was to reinstate the poll tax and even increase it. To supplement this source, some southern states introduced another special but general tax which is paid by every adult male (both self-employed and those employed publicly and privately). For instance, in IMO state of Nigeria, the name of the special general tax is 'survival levy' while in Oyo state, it is called 'development levy'. The instinctive worry of most citizens is whether they are not unduly burdened by the various taxes and levies which have been introduced by the Armed Forces.

However, it is little difficult to be able to say how successful any measure is within a military regime simply because of its show of force. The willingness of the citizens to pay these various taxes and levies without any form of coercion or instilled fear when and if the government becomes elected again will show how well the new versions of poll tax have been accepted.

But it might be interesting to know why the tax was abolished in the first instance. First, the local politicians did not give any clear direction both on its assessment and collection. Secondly, defaulters could not be easily arraigned as there was no appropriate judicial arm of government at the local level to try defaulters. Thirdly, most

citizens became highly sceptical as to whether it was proper to pay any tax or levy at all as they were not receiving any service in return. In reality, therefore, the tax's low yield, heavy politicisation, inequity and the paternalistic attitude of the federal government embodied in the 'statutory allocation' reduced the significance of this source of revenue at the local level whereas it is a very viable alternative to rates. Like most of the other sources of revenue which we have discussed earlier in this paper this source suffered from both inefficiency and ineffectiveness in Nigeria.

Loans

Loans as a source of revenue is not a direct charge upon the present tax payer although its repayment may well be. It is also not susceptible to appraisal by the same criteria as taxes and charges but it can assist in development.¹⁴ However, there is an unresolved argument between monetarists and Keynesian economists as to what extent public authorities including local governments should borrow. As a result of this argument, practices vary from country to country.

However, most services for which local governments borrow money are capital projects which are expected to generate the resources to pay off the loan. Apart from this broad principle, local governments borrow money for five specific reasons. These are:¹⁵

- (i) to fund short term cash flow deficits arising from uneven patterns in revenue collection,
- (ii) to finance investment which is expected to earn income,
- (iii) to pay for capital development which is not expected to earn income,
- (iv) to purchase plant and equipment with a medium-term life, and
- (v) to finance deficits in annual budgets covering operating expenses and debt charges.

Institutions from which local governments can borrow money are basically four. These are loan agencies established and controlled by the central government but functioning as autonomous agencies; credit cooperatives formed and controlled by the local governments themselves or in conjunction with the central government and external sources. From whichever of these sources a local government intends

¹⁴Kenneth, Davey, *Financing Regional Government International Practices and Their Relevance to the Third World*, John Wiley & Sons Ltd., 1983, p. 108.

¹⁵I. Blore, These five basic reasons for raising loans at the local level are those outlined by the author in his lecture notes on "Regional Government Borrowing", I.D.G.S., University of Birmingham, U.K., 1985.

to borrow money, the permission of the central government has to be obtained. The central government insists on this practice just to ensure that the expenses of the local governments fit into the overall economic policy of the country.

In Nigeria (before 1976) loans as a source of revenue for local governments was very insignificant. This is because only a very few local government capital projects could generate direct revenue to amortise and service the loan capital. In an attempt to correct this trend, the 1976 'Guidelines' directed.¹⁶

- (i) that loans should be restricted to a minority local government projects which can generate substantial, immediate and direct revenue to cover amortisation interest and operating costs.
- (ii) that loans capital could be used to bridge the gap between budget approval and actual receipt of grant to enable projects proceed unhampered.
- (iii) that the minimum period for any loan should be ten years.

Although we have no data at our disposal with which to explain how useful this source has been to local government councils in Nigeria since 1976, the declaration of one of the Secretaries of the Local Councils¹⁷ that this source has never been used at all since then, shows its impact on this level of government. What should have been responsible for this trend? From the existing Guidelines enunciated above, it is apparent that loans can at best, marginally contribute to the activities of local government Councils. Three reasons can easily be adduced for this assertion. Firstly, the time limit is too short for any serious capital formation to take place at the local level. Secondly, the non-existence of a Central Loans Board either at the Federal or State levels of government exposes the local government to the private finance market that can hardly ever be sympathetic with the economic goals of local council in Nigeria. Finally, local government hardly have adequate and acceptable security to be pledged to the private money market that will be able to attract loan from the same.

As a result of these limitations, loans only serve short term purposes in Nigerian local government Councils whereas it could do much more if well tapped and harnessed. One way of doing this is for the central government to establish a government Loans Board for Local Government Councils. The local governments would then borrow from the

¹⁶Federal Republic of Nigeria, *op. cit.*, p. 14.

¹⁷Adeyemi Fasuba, "A Monograph on Resource Mobilisation for Local Governments". In his capacity as the Secretary of 'Ifesowapo Local Government' he gave this view during the Resource Mobilisation Workshop for Local Government in Nigeria, held in ASCON, Topo, Badagry, July 7-13, 1985.

Board to provide some basic amenities which are presently not available in some communities. The beneficiaries would be made to contribute substantially to the repayments of the loans by way of fees and charges.

SUMMARY AND CONCLUSION

To Council officials in Great Britain especially those in the Treasury departments in the Metropolitan Borough Councils of Dudley, Taunton and Bolton and Somerset County Council (which Councils we visited during our short course on Local Government Finance) revenue collection is routine and hardly poses any problem as up to 97 per cent of their expected revenue from the various sources are effortlessly collected every year. This is not surprising as even those who cannot afford payment have institutionalised avenues for getting assistance to do so. Yet again, the academic who has no knowledge of the enormity of the problem of revenue collection in Nigeria, is most likely to be cynical about the topic under discussion. The truth is that the problem of revenue collection is one of the most critical problems in Nigerian administration. So while most existing literature has most elaborately discussed the sources (actual and potential) of local governments, none has gone beyond this to outline how best to assess and collect revenue at the local level in Nigeria which could yield positive results and meet the test of time.

One should appreciate from the onset that there are many societal problems that militate against the non-payment of taxes at the local level in Nigeria. For example, most people have no steady source of income. There is no form of social benefit that can assist those in difficulty. A function of these two problems is that there is extreme poverty and deprivation in most places. Yet again, some basic amenities which could have at least encouraged the unconvinced minds are in most cases not in existence. Irrespective of these daunting problems, government expects its citizens to make some contribution for the running of state activities either by way of tax or by rates, fees and charges. This is obviously paradoxical.

The study is, however, not a comprehensive but a heuristic attempt at the problems that impede the efficient and effective collection of revenue at the local government level in Nigeria. This is so because the data base is circumstantially patchy and in most cases out of date. Nonetheless, it has attempted to identify the existing sources of revenue and discussed their limitations.

The unfolding picture from the study is that all the sources of revenue open to local government Councils in the country are either overdeployed or under-deployed. Both the government and the citizens collectively share the blame. Most citizens in the country misconstrue

what is government with the implication that they are over-prepared to demand their rights without any corresponding willingness to pay their duties in form of taxes and rates. The government, on the other hand, has not as yet mustered the political will to ensure that all eligible citizens are made to pay as and when due. So instead of amplifying the existing and potential revenue sources of this level of government what we must do, as of now and in the immediate future, is to reverse this trend. One way of doing this is to ensure:

- (i) That all taxes, rates, fees and charges are annually assessed and updated to match with annual socio-economic variables like inflation.
- (ii) That penalties are promptly and effectively invoked on defaulters and late payment to serve a deterrent to others.
- (iii) That incentives are given to individual citizens who pay very early to serve as encouragement to others.
- (iv) That payment is induced by demanding for receipt of payment of local taxes, rates, fees and charges before one is given medical attention and other governmental services. It is encouraging to note that this measure is already being positively operated in some southern states.
- (v) That cost and risk of collection of these local sources of revenue are reduced by multiple collection of local taxes in a single transaction.
- (vi) That a Local Government Loans Board is established at the centre which should serve as both avenue for raising capital for development and a source to technical assistance as and when the need arises.
- (vii) That instead of the existing two bases for allocation of revenue from the central government, another dimension which presently operates efficiently and effectively in West Bengal in India and in Indonesia should be introduced. Under this, both incentive on reward and target indices should be introduced in conjunction with 'population' and 'equality' to allocate federal grants. For example, 'A' local government Council that collects the targeted revenue will get more than 'B' local government Council that under-collects the same. However, this criterion should be very small initially as most local government units differ in various ways and should, therefore, be applied with caution.

If these points are implemented among others, and reasonable but sufficient pressure is put on those assessed to pay as and when due, and all yields are duly accounted for, local government in Nigeria will be

able to provide the services for which they are set up given the right calibre of staff. ☐

Decentralisation and Urban Local Government in Tanzania: Recent Reforms and Policy Evolution

SALAHUDDIN MD. AMINUZZAMAN

DURING THE recent years a large number of governments in developing countries have attempted to decentralise the governmental structure in order to facilitate the pace and process of development. Decentralisation has taken a number of different forms—deconcentration of functions within central bureaucracy, delegation to autonomous or semi-autonomous bodies, devolution to local government bodies, etc.¹

In some developing countries, decentralisation policies and programmes were, however, inappropriately designed, organised and implemented. Decentralisation exercises were taken even before building the needed institutional mechanism or the required administrative capabilities.²

Government of United Republic of Tanzania undertook a massive decentralisation scheme in 1972. The decentralisation scheme primarily attempted to develop and strengthen the administrative mechanism to carry out local level development. This paper attempts to review the Tanzanian experiences of decentralisation. In particular, the paper examines to what extent the urban local governments in Tanzania have been affected by the decentralisation exercise.

EVOLUTION OF LOCAL GOVERNMENT IN TANZANIA

At the time of independence, there were two types of local authorities in Tanzania. In the first category—eleven urban and six rural

¹Dennis A. Rondinelli, J.R. Nellis and G.S. Cheema, *Decentralization in Developing Countries: A Review of Recent Experience*, Washington DC, The World Bank, Staff Working Paper No. 581, 1983.

²Dennis A. Rondinelli, "Government Decentralization in Cooperative Perspective: Theory and Practice in Developing Countries," *International Review of Administrative Sciences*, Vol. 42, No. 2, 1981, pp. 133-45.

councils were established under the Local Government Ordinance of 1953. In the second category there were 50 other rural local bodies under the old Native Authority Ordinance of 1926.³

There was little practical difference in the functions of the local authorities of whatever category. The rural authorities created under the Native Authority Ordinance were not fully representative by electoral process. They also lacked jurisdiction over non-African residing within the area, and they had no power conferred upon them to perform governmental functions in their own right.

Through a series of amendments to the Local Government Ordinance 1953, new local government authorities known as District Councils, were established.⁴ The main functions of the councils were :

- (a) to assist the central government in the suppression of crime and maintenance of law and order;
- (b) to maintain public roads in their areas;
- (c) to safeguard and promote public health;
- (d) to become Local Education Authority for the primary schools in its area; and
- (e) to levy rates sufficient to cover expenditures in exercising the foregoing responsibilities.

Immediately after the independence of Tanzania, the nationalist government initiated several efforts to gradually Africanize the business of the government. For local government system, the national leadership rejected the idea of multi-racial electoral process and introduced election based on universal suffrage. In the colonial era, elected local government officials had to meet certain level of socio-economic status and education qualification to qualify for election. After independence, such 'undemocratic' element was immediately abolished.

Act 2 and Act 18 of 1962 brought significant institutional changes so far as the local government system is concerned.⁵ The nationalist government by these Acts appointed the Regional Commissioners (RC) and the Area Commissioners (AC) replacing colonial offices of the Provincial Commissioners (PC) and District Commissioners (DC).

These Acts also initiated the politicisation of the local government. Apart from heading the regional and district administration, RC's and AC's also became the secretaries of Tanganyika African National

³Stanley Dryden, *Local Administration in Tanzania*, Nairobi, East African Publishing House, 1980.

⁴Government of United Republic of Tanzania (GURT), *Local Government Ordinance, 1953*.

⁵GURT, *The Area Commissioner Act 1962*.

Union (TANU)* in their respective areas each being assisted by a full time centrally employed party official called a deputy secretary.⁶

Another radical move taken by the government after independence was the abolition of *Chiefs*. In fact during the colonial era, the government relied heavily on the *Chiefs* (in rural areas) and *Liwalis* (in urban town) in administering the country. In very many cases these colonial agents were found to be political counter weight to TANU leaders during the independence movement⁷ Thus with the abolition of *Chiefs*, the socio-political and administrative positions of these former local elites were taken by TANU officials and other political executives.

After the army mutiny in January 1964 there started a massive politicisation process in Tanzania. The TANU Cells were introduced by the end of 1964. These 'ten house cell' were created as the smallest basic unit of the political party. A village or township was divided into cells each with up to ten houses having its own *Balozi* (leader).⁸

Later in line with the introduction of the one party state in 1965, the government passed the Local Government (Election) Act of 1966. This Act provided for TANU to control the nomination and election of district councillors to represent the geographical area in the district known as ward. In fact this Act further meshes the party and local governments more closely together. First, through the changes in electoral system by a process of pre-selection of all candidates by the party. Secondly, the chairmanship of every local council—urban and rural—was given *ex officio* to the Chairman of the corresponding TANU area branch. In addition, the number of government nominated councillors was raised.⁹

In 1969, the central government took further steps to cut down the autonomy of the local governments.¹⁰ Some specific steps were taken. First, responsibilities for management of primary education, health

*In 1964 Tanganyika and Zanzibar got united and formed the United Republic of Tanzania. Later in 1965 Tanzania became a one party state. However, two parties, namely, Tanganyika African National Union (TANU) for the mainland and Afro Shiraz Party (ASP) for Zanzibar remained in practice until 1977 when it was decided to merge the two parties into one national party called Chama Cha Mapinduzi (CCM). Even before merger TANU was the sole active party in the national politics.

⁶GURT, *The Area Commissioner Act 1962*.

⁷G.R. Mutahaba, *Organization for Development: Tanzania's Search for Appropriate Local level Organizational Forms* (Mimeo), Department of Political Science and Public Administration, University of Dar-es-Salaam, nd.

⁸G.K. Omari, *Ruling Class and Rural Development Policy in Tanzania in the Seventies*, (Mimeo), Department of Sociology, University of Dar-es-Salaam, 1982.

⁹GURT, *Local Government (Election) Act, 1966*.

¹⁰Mutahaba, *op. cit.*

care, district roads were transferred from the district council to the technical ministries. Secondly, two principal sources of district council revenue, i.e., local rate tax and produces cesses were abolished. Reviewing the situation one observer therefore comments that for all practical purposes local autonomy in the district councils died in 1969.¹¹

The most drastic measure came in 1973 when the government formally announced the abolition of all local government units. In the light of 'decentralization scheme' the local authorities were replaced by an integrated institutional structure. In place of the local authorities and multiplicity of field based central government political and technical organisations operating independently of one another, an integrated institutional model was created—popularly labelled as a "Decentralized District Development Organization". Instead of devolution to local participatory institutions for governance, the new system emphasised the delegation of substantial power and responsibilities to the field level central government officials.¹²

DECENTRALISATION—TANZANIA MODEL

The ideological inspiration and political support of President Nyerere was the basis of introduction of a massive scheme of decentralisation in Tanzania. In his policy pronouncement President Nyerere argued that if a comprehensive development is to be realised—local initiative, participation must be ensured.¹³ The Decentralisation Act provides authority and power to the "Regional and Districts to plan and implement local development activities as well as to administer local affairs with the very minimum interference from the centre."¹⁴ One of the four focussed aim of the decentralisation exercise is to facilitate the "gradual equalisation of the peoples' well being between regions".¹⁵

The decentralisation policy initiated a comprehensive reform of the structural, functional arrangements of the government especially at the local level. The main focus of the reform is to make the structure more effective in planning and implementation of the development programmes. The reform therefore emphasised much on output and achievement rather than adherence to formal rules, more orientation towards political, social and economic goals, more emphasis on area basis coordination and team work and the encouragement of peoples'

¹¹Mutahaba, *op. cit.*, p.14.

¹²GURT, *Decentralization Act 1972*.

¹³J.K. Nyerere, *Decentralization*, Dar-es-Salaam, Government Printer, 1962.

¹⁴*Ibid.*, p. 3.

¹⁵*Ibid.*, p. 4.

participation through decentralisation of decision making processes.¹⁶

The task of designing the decentralisation scheme was assigned to McKinsey and Company, a reputed American Management Consultant firm. In the light of the broad policy suggestions of the firm and upon thorough review of the government, several changes were introduced. The major institutional structural changes are as follows¹⁷:

- (i) Regional and district administration ceased to be a collection of ministerial representatives. central government's functional ministries had their working decentralised and their offices at the regional and district levels integrated into single development and administrative unit named Regional Development Directorate at the regional level and District Development Directorate at the district level.
- (ii) Regional Development Directors (RDDs) and District Development Directors (DDD) were appointed to replace the Regional Administrative Secretaries and Area Secretaries respectively. The development directors were made administrative heads of their respective directorates. The RDDs were given the status of Principal Secretary (PS) of a Ministry and were declared the accounting officers of their regions.
- (iii) RDDs and DDDs were made responsible to the Regional Commissioners, (RC) and Area Commissioners' (AC) respectively for all development activities within their respective jurisdiction. The relationship between Commissioners and Development Directors was referred as the same that exist between the Minister and the Permanent Secretary.

Decentralisation 1972—therefore, repealed the Local Government Ordinance 1962 and abolished all local councils established under such ordinance. Accordingly, new institutional arrangements were created. At the district level, the District Councils were replaced by the District Development Council (DDC)—a new politico-administrative body. The DDC is composed of a Chairman who is *ex officio* Party* local chairman, the District Development Director, (DDD) as Secretary. The DDC is membered by the Area Commissioner, all members of Parliaments in the district, all elected members of erstwhile local councils of the districts, all functional and staff officers appointed at district.¹⁸

¹⁶D. Conyers, "Decentralization for Regional Development: A Comparative Study of Tanzania, Zambia and Papua, New Guinea", *Public Administration and Development*, Vol. 1, No. 2, 1981, pp. 107-120.

¹⁷GURT, *Staff Circular No. 8, 1972*.

*Party refers to TANU for mainland and ASP for Zanzibar until 1977 when CCM was formed out of the merger of the two parties.

¹⁸GURT, *Decentralization Act, 1972*.

Every District Development Council was required to establish a District Development and Planning Committee (DDPC). The DDPC is chaired by Area Commission—who is the *ex officio* District Secretary of the party. The District Development Director acts as the Secretary of DDPC. In addition, the district Chairman of the party, all members of the parliament of the district and staff and functional officers of the district and 25 per cent or less than 10 elected members of the DDC are coopted as members of the DDPC.¹⁹

The DDC's main function is to approve the development proposals which either originated below or were initiated at the district level. Once the project is approved it is submitted to the regional level for further scrutiny. DDPC is assigned to supervise the development projects.

At the Regional level the new institutional set-up was created called Regional Development Council (RDC), the membership of which included,²⁰ the Regional Commissioner, the Regional Development Director, the Regional Staff Officers, all functional officers at the Regional level; the Regional Chairman of the party, the Area Commissioners, District Development Directors in the regions, District party chairman as well as all MPs in the region. The RDC discusses development project proposals emanating from the lower levels, rank them and submits the same to the national level for decision.

DECENTRALISATION AND PLANNING PROCESSES

One of the basic goals of the decentralisation policy is to enhance the level of people's participation in the development processes. The assumption was that identification of and initiatives for the projects would be made at the grassroot, *i.e.*, by the village council for the rural areas and the Ward Development Committee for the urban areas.

Ward Secretary for the urban areas and village chairman for the rural government, who would therefore submit the projects to the functional officers (FO) at the district level. FOs along with their comments then present the projects to the District Management Team (DMT) chaired by the DDD. The DMT is not a constitutional body but acts as a task force at the district level. DMT is composed of functional officers only. After review of the DMT the projects are presented to DDPC, which reviews again the proposals before submitting them for further deliberation in the DDC. The DDC then shapes up the final project proposals and submits it to the District Executive

¹⁹GURT, *Decentralization Act 1972*

²⁰*Ibid.*

Committee of the DDD for approval. The District Executive Committee of the party then submits the consolidated project proposals to the Region.

At the regional level, the project proposals are reviewed by the Regional Management Team (RMT) chaired by the RDD. RMT is composed of the functional and staff officers at the regional level.

RMT gives a formal and final shape of the consolidated regional plan. The proposed plan is then presented to the RDC and later on it is to be cleared and approved by the regional executive committee of the party. After all these processes, the consolidated regional plan is sent to the Prime Minister's office for final approval.

PROBLEMS OF DECENTRALISATION

An often expressed hope is that decentralisation will enhance people's participation and will reduce overload and congestion in the channels of administration and communication. However, Tanzanian experience reveals that the consequence of the adoption of decentralisation exercise, however, leads to the near elimination of participative governance. Contrary to the expressed objectives of the measures, the new system gave prominence to the members of the bureaucracy posted at the regions and districts.

In Tanzania, decision making power for local development, in actuality lies with the DDPC. Ironically in most cases the elected representatives are over numbered in the DDPC by the bureaucrat and technocrat members. The bureaucrat/technocrat are full members of the DDPC with voting rights. This being the case, it implies therefore that the ultimate decision making power lies to the few members of government and party bureaucracy contrary to the desire for broad people's participation in decision making. Furthermore, the DMT, a team composed of bureaucrats and technocrats, as empowered to review all the projects before placing it to the DDPC. The DMT can eliminate or sabotage any project at this level without being challenged or argued by any people's representative. Similarly, at the regional level the Regional Management Team takes the lead role in the decision making processes. Recent research findings have revealed that "invariably the Regional Team or the District Team controlled what was discussed, decided and implemented. The non-technical members of the RDCs DDCs were generally in attendance, at meetings which tended to be dominated by bureaucrats and technocrats."²¹

Another issue that handicapped the performance of the RDC/DDC is the poor financial base. The DDC did not have the taxation or revenue generation power to meet its own perceived projects. Thus

²¹ Mutahaba, *op. cit.*, p. 14

these local bodies were severely dependent on the grants-in-aid from the central government. Although it was anticipated that the regions would handle about 40 per cent of the government budget—but in actual practice it was found that the regions received only 14 per cent on the average.²²

Furthermore the decentralisation system made the RDD and DDDs as self-accounting officials, i.e., the RDDs and DDDs are the respective accounting officers of all government money that come under their purview. Such financial power has further consolidated the bureaucratic nature and role of the RDD/DDDs as well as limited the role of the RDC/DDC in terms of financial accountability.

Decentralisation was supposed to lead to a greater implementation capacity, improved coordination, broader participation of the local and regional bodies in the development processes. However, Tanzanian experience reveals that the field administration continued to suffer from shortage of resources and adequate administrative and technical staff. Vacancies at the regional and district levels were constant at 30 per cent or more.²³

Recent studies have identified following other bottlenecks that hinder the spirit and implementation of the decentralisation policy:²⁴

- (a) The RDD, DDD and functional officers often and unexpectedly had to launch campaign to implement party directives. Party decisions as enforced by the Regional and Area Commissioners were supreme and not subject to programming.
- (b) Decentralisation introduced too many high level positions at regional and district levels. These many officers created confusion at these levels and unnecessary increase in the size and cost of the civil service.
- (c) Decentralisation also discouraged realistic budgeting and long term planning in the regions. In fact regions vied with each other and the ministries in receiving a bigger share of the

²²J. L. Mbago, *Local Government and Development in Tanzania: A Case Study of Dar-es-Salaam City Council*—Unpublished Masters thesis, Department of Political Science and Public Administration, University of Dar-es-Salaam, 1985.

²³Loise Fortmann, *Peasants, Officials and Participation in Rural Tanzania: Experiences with Villagization and Decentralization*, Ithaca, NY, Cornell University, Rural Development Committee, 1980.

²⁴For detail see Mbago, *op. cit.*, Goran Hyden, *Decentralization and Government Staff*, Dar-es-Salaam, University of Dar-es-Salaam, Decentralization Research Project, 1976. Andrew Coulson, *Decentralization and Government Budget*, Dar-es-Salaam, University of Dar-es-Salaam, Decentralization Research Project, 1976; and Philip Mawhood, "The Search for Participation in Tanzania" in Philip Mawhood (ed.), *Local Government in Third World: Experience of Tropical Africa*, New York, Wiley, 1978.

governmental budget for regions. The situation encouraged exaggerated budget estimates from the regions and inhibited long range planning since regions got a very small percentage of their requested amount.

Experiences of the third world countries reveal that in practice no system of decentralisation is a pure version of deconcentration or devolution. However, no one or the other tends to predominate. Tanzania's decentralisation reform of 1972 is more a case of deconcentration than devolution since much control particularly in relation to policy and finance has remained with the center. One important feature of Tanzanian decentralisation exercise reveals that by its very nature it was deconcentration type of decentralisation which tends to be more managerial than participatory for several reasons like, key implementors are controlled by the center through appointment, promotion, etc., policy and financial decisions are made by the center. Thus participation of the masses is likely to be sought mainly for instrumental reasons. In other words, the responsiveness of the people to the demands of the bureaucracy tends to receive more emphasis than accountability of the bureaucracy to the people.

REVIVAL OF URBAN COUNCILS

Weakness in urban administration and poor performances of the DDCs drew the serious attention of the national leadership. In fact President Nyerere himself was convinced that the dissolution of local government was 'a grave mistake' which needs never be repeated.²⁵ A Presidential Committee was appointed to study the state of local government system and the decentralisation scheme.²⁶ In the light of the recommendation of the Committee in July, 1978, the government of Tanzania took the decision to revise the decentralisation policy and reestablish the urban councils. Accordingly, one city one municipality thirteen town councils revived and started work. These urban councils were reconstituted under the Urban Council (Interim Provisions) Act, 1978—which replaced the Decentralisation of Government Administration (Interim Provisions) Act, 1972.

For the Capital City of Dar-es-Salaam—the City Council was created in the light of 1978 Act. The council created, however, had somewhat little freedom as compared to the one that was abandoned in 1972. The council was not allowed to levy tax. It became totally dependent on central government grant. The newly constituted City Council

²⁵*Daily News*, March 30, 1985.

²⁶Mutahaba, *op. cit.*

consisted of the Chairman of the City CCM as 'Mayor', the City Director—a nominee of the President as well as the Chief Executive of the Council, the constituency members of the Parliament representing the city constituency, a representative of the Regional Commissioner, one person elected from each urban ward of the city, and such other officials appointed for the council shall be entitled to attend meetings of the council without voting right.

The Urban Council Act, 1978 also made it clear that the Urban Councils would fall under direct control of the Central Government by-passing the district and regional authorities.

Local Government Reforms 1982

To further streamline the administrative anomalies and malfunctions of the Urban Councils, the government undertook another significant move in 1982. A new Act called Local Government (Urban Authorities) Act was enacted.²⁷ This Act replaced the Decentralisation of Government Administration (Interim Provisions) Act, 1972 and also the Urban Council (Interim Provisions) Act, 1978. The main spirit of the Act was to revitalise the participativeness and direct election of the urban local councils. The Act, therefore, rejected categorically the practice of *ex officio* Mayors. The Act outlined that the officials (Mayor/Chairman) of the Urban bodies would be elected from among the elected councillors by the full council. In addition, the nominees of Regional Development Committee, Regional Commissioner, Area Commissioners were swept away.

The Local Government Act, 1982 outlined that the City/Town Councils shall consist of :

- (a) members elected one each from the wards within the city/town
- (b) the Member of Parliament representing the constituency within which the city is situated or Members of Parliament representing constituencies within the area of the City Council. However, Act of 1982 also maintained a provision of appointment of not more than six other members to be selected by the Minister of Local Government from among the residents of the city/town. In addition, all the functional officers of the central government in the town/city are *ex officio* member of the council with the voting right.

The Urban local authorities regenerated by the Act of 1982 are given a legal sanction to generate local resources through the collection of selected rates and duties. Apart from taxation, another source of revenue is derived from central government grants. However, a grant

²⁷GURT, *Local Government (Urban Authority's) Act, 1982*.

is paid by the central government only after determining²⁸ :

- (a) the cost incurred by urban authority in the provision and maintenance of public health services, educational services construction, reconstruction and maintenance of sewerage and agricultural extension services;
- (b) a sum equivalent to total expenditure by urban authority, in connection with outbreak of infectious diseases;
- (c) a sum equivalent to thirty three and one third per cent, in case of a municipality and in the case of a town council equivalent to fifty per cent of total annual salaries of all heads of departments of the urban authority concerned.

The Act also allowed the local governments to raise loans, subject to prior approval of the Ministry of Local Government, from any source within the country. However, such loans in any circumstance should not exceed the income of the authority in the previous year.

Regarding the staffing of the local government authorities, some fresh initiatives were made to enhance their administrative capabilities. A number of senior staff with experience in the earlier local governments which existed prior to decentralisation were identified and brought back from different civil service posts to the newly formed local bodies. Several training and reorientation courses were conducted. Finally, separate law was passed for the launching of a unified Local Government Service Commission. The Commission was responsible for the appointment, transfer, promotion, disciplining staff of the local government bodies.²⁹

CONCLUSION

Decentralisation measures in Tanzania were taken to further the democratic participation of the people for accelerating the development processes of the country. Available evidence, however, does suggest that the decentralised system adopted in 1972 did not fare much better on the overall, in terms of management of development at the local level.

Decentralisation scheme in Tanzania could not bring effective changes due to some inbuilt limitations. The decentralisation policy abolished the vital institutional framework of local governments and thereby ignored the issue of peoples' participation through electoral processes. It further consolidated the power and authority of the

²⁸GURT, *Local Authority Revenue Act, 1982*.

²⁹GURT, *Local Government Service Commission Act, 1982*.

bureaucracy not necessarily at the local level—but at the capital city—who were assigned to approve the development projects initiated from below. In other words, it further centralised the decision making authority. In addition, institutional and financial support from the Central Government were minimal. Effective linkages for central assistance were missing. Whatever assistance was offered, it ultimately became control mechanism, thereby increasing local dependence. Rather than creating a more effective partnership between Central Government and local authorities—the decentralisation policy of Tanzania, increased the penetration of the central bureaucracy into the local arena of government.

With all these costly political and administrative experiences, the Government of United Republic of Tanzania had consequently decided to revive the urban local government. Success of these revived urban authorities would, however, depend on to what extent these bodies would be kept free from central control and bureaucratic dominance. □

Book Reviews

Industrial Location, MICHAEL J. WEBBER, Sage Publications, New Delhi, 1984, pp. 94, \$ 6.50.

In this book, Prof. Webber makes a cognant analysis of the decisions and issues involved in the location of industrial production. He supports the contention that industrial location incentives and tax policies have not been significant long-term factors of industrial location. It is demonstrated in the book that with the fall in the transport cost, the major location factors have become labour and agglomeration, both of them being dependent upon the general social, economic and political system.

The study is divided into six chapters, viz., motivation, context, profits and location, least cost theory, transport costs and production costs and agglomeration and industrial location in practice.

Chapter 1 reviews the history of manufacturing in the United States and discusses, in general, the principles that govern the decision of firms. In the subsequent five chapters, the book introduces the study of industrial location. Chapter 2 describes industries data sources, types of business organisations, and changing economic scenarios. This chapter claims that the location of industry reflects the economic character of society. Chapter 3 describes the principles of location theory and outlines the ways in which firms make location decisions. In chapters 4 and 5 an attempt has been made by Webber to develop a simple theory of industrial location (least cost theory) based on the principles of location theory. These chapters, in fact, devise some general rules about the location of industry alongwith an explanation as to how the various costs of production vary over space. Chapter 6 concludes by saying how to apply these rules to the more complex contexts described in Chapter 2 in order to explain actual location patterns.

Webber uses numerous data sources and describes three illustrative examples : the aircraft parts industry in New England, the industrial decline in the United Kingdom, and the location pattern of manufacturing within cities in the advancement of the theoretical arguments in this book.

The book can be considered a unique introduction to the strategy

and pattern of industrial location in the light of the stress that Webber places on the historical context of decisions and the social production of labour and agglomeration. The book should be of particular interest to students of public policy and industrial location analyses.

—GIRISH K. MISRA

Cities in the 21st Century, GARY GAPPERT AND RICHARD V. KNIGHT, (eds.), Volume 23, *Urban Affairs Annual Reviews*, Sage Publications, London, 1982, pp. 352, \$ 14.00.

In the States, Gary Gappert is famous for his book on *Post-Affluent America* whereas Richard V. Knight is known for his work on *The Metropolitan Economy, Employment Expansion and Metropolitan Trade, and Suburbanisation and the City*. In this book both the authors have edited nineteen exceptionally creative essays which weigh the social, economic, demographic, historical, cultural and technological variables most likely to influence future urban evolution. The authors analyse the forces that encourage both stagnation and change in urban forms and life styles. The editors' lucid introduction, section notes, and epilogue frame the essays as a whole, and extend the discussion to cover issues of future urban management.

Gary Gappert in his introductory essay discusses the future of urban America. On the one hand, he foresees a post-affluent transition being triggered off by the events of 1971-1974, viz., price controls, the oil boycott and the dramatic increase in energy costs. On the other hand, he imagines the possibility of developing a model of an advanced industrial society as an alternative framework for the interpretation and projection of emerging trends and realities in American society.

The remaining 18 essays are grouped into five parts. The first part which consists of three essays, provides a historical orientation describing the patterns of urban change and development both for the national system of cities and for individual urban places. James F. Richardson in the first essay in this part on "The Evolving Dynamics of American Urban Development" reviews the emergence of the American urban system of cities that began around 1840 and continues to the present. Richard V. Knight in his essay, "City Development in Advanced Industrial South" focusses on the future development of the industrial city, attempting to outline the logic of its evolution into a more complex and cultured type of urban place. Arthur Shostak presents 'Seven Scenarios of Urban Change' using materials that were developed for the tricentennial celebrations in Philadelphia (1682-1982). This attempt reminds us of the importance of choice—collective and individual in the achievement of urban progress.

Part II deals with demographic realities which, it is assumed, will provide for both substantial continuity and substantial change in the next 35 years of urban development. In this part also there are three essays. Kathleem Butler and Ben Chinitz in their essay, 'Urban Growth in the Sunbelt' outline a fifty-year perspective on new urban populations in the American West. Warner Bloomberg and Rodrigo Martinez (—) Sandoval in their essay focus on development of a new type of American urbanisation based upon the growth of the Hispanic population in the border regions of the South West. 'The future of Black Ghettos' is the essay written by Harold M. Rose which presents a historical analysis of the emergence of large black ghettos and speculates about their future.

Part III includes five essays where a sense of substantial transformation in urban development is perceived between the forces generated by the post affluent transition in the early 1970s and those trends and reactions emerging as the current post-affluent decade. Jon Van Til in his essay, 'New City Types in an Energy—Short World' outlines some of the spatial consequences of four energy scenarios in the near and immediate future and elaborates some of the problems of an energy—short city in the 21st Century. Larry Hirschhorn reports on the revolt of the middle managers in the year 2001 and reveals some likely transformations in the institutional environments of cities. Joseph F. Coates in his essay, 'New Technology and their Urban Impact' lays out seven ways in which technology is likely to influence cities in the next 50 years. Susan Saegert's essay on 'Toward the Androgynous City' reviews issues relating to the gender identity of built environments and speculates about an androgynous city in the future. John P. Blair introduces a model of how the expansion of economic dislocations is going to create more urban irregular economies alongside the changing mainstream economy.

Part IV contains four essays which explain that some urban conditions may never change but cities will continue as centres of innovation and creativity. According to the editors, this sort of change may be seen as a source of urban stability. David J.O. Brien and Lynon Chough explore the future of urban neighbourhoods and report on attitudes relative to community and place in their essay. 'The Future of Urban Neighbourhoods'. Richard Fleischman reminds us about the role of quality and the enduring elements of architecture on great cities. Frank Costa and Young Cho in their essay 'Frontierism and Civil Leadership' are of the opinion that the enduring forces of privatism and frontierism will continue to subject American cities to the prospects of further decline. Sally Engle Merry reports on the realities of urban danger that will loom large on cities as long as they remain heterogenous and foster cultural and moral diversity.

In Part V, it is hoped that some cities at least will be able to achieve an intentional and not an accidental transformation as they enter the 21st century. James Alm and Jesse Burkhead analyse the newest federalism against a historical and theoretical background in their essay 'The Future of Fiscal Federalism.' They conclude that for most cities, a fiscal safety net is not yet in place the outlook may be 'most dismal'. Deborah Bickford and Charles Vehorn in their essay, 'Changes in the Provision of Public Services,' underline the ways in which cities are likely to respond to cutbacks and shortfalls. They identify four likely consequences of reduced public services—lower expectations, increased disparities, new public-private relationships, and innovativeness. In the last chapter, which is an epilogue, Gary Gappert and Richard V. Knight suggest the need for: (1) a new philosophy of urban development, (2) new management skills, and (3) a complex urban future management model.

As a matter of fact, this thought-provoking original 19 collections are especially useful for policy-makers, planners, administrators, researchers, and students concerned with urban future.

—GIRISH K. MISRA

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Editorial

Planning is essentially conceived as a process involving an analysis of initial status, setting of goals and objectives, examination of alternative strategies, implementation, monitoring, feedback and review of goals and objectives. The information base required for sustaining such a planning cycle hardly needs to be emphasised. In fact information base is needed at every stage of the planning cycle.

Unfortunately, however, our attempts at urban development has so far not been supported by an information base even in a rudimentary form. The consequences have been obvious: the plans have, by and large, not been in conformity with the needs and priorities of the communities planned for, effectiveness of transformation from the initial state to the intended final state has been neglected and a large section of the local community has been deprived of the fruits of development.

If the end result of planning for urban development has to be effective, the urban plans have to be based on urban information system and the implementation processes as also monitoring and feedback have to have separate sub-systems. Fortunately for us advances in information technology have made it easier to collect mass of statistical data, manage its filing and retrieve them as and when required.

With this end in view, we have devoted this special number of *Nagarlok* to Urban Information System. We had planned to include information sub-systems for all the relevant aspects of urban development including management of urban services and municipal finance. The response to our endeavour, however, could not be adequate. Nevertheless, we earnestly hope that this special issue would prove to be useful in adding to the knowledge of information system and also in developing it.

—Editor

Editorial

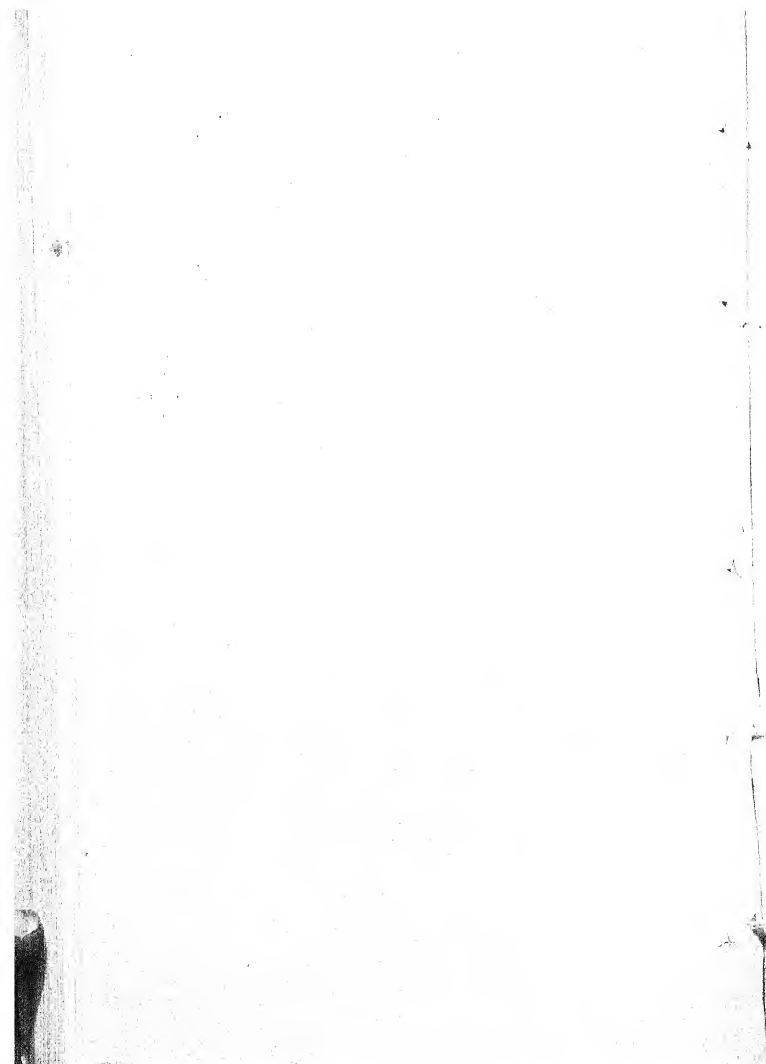
Planning is essentially conceived as a process involving an analysis of initial status, setting of goals and objectives, examination of alternative strategies, implementation, monitoring, feedback and review of goals and objectives. The information base required for sustaining such a planning cycle hardly needs to be emphasised. In fact information base is needed at every stage of the planning cycle.

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—Editor



Information System for Urban Development: Some Conceptual Issues

S. S. DUTTA*

ALTHOUGH PLANNERS and decision makers have for long tapped information resources of varying quality to tackle problems of urban growth, exigencies of development in recent years have given a new dimension to this aspect. For one thing, urban development has come to be regarded as much more than mere physical aspects of development involving social, economic and environmental concerns bearing on quality of life. Related to this and as a pre-requisite to rational process of decision making is the need for better understanding of the processes underlying urban growth both at macro (national and regional) and micro (city) levels. While master planning still continues to be the dominant mode of planning, cross currents of contemporary planning and urban management trends have induced greater appreciation of planning as an iterative process involving certain discrete steps in conjunction with new techniques and methods such as PPBS, etc. Yet another important source of concern in this context is evaluation and monitoring of various policies and development programmes consistent with efficient and equitable use of limited resources. Without under-rating the possibilities opened by recent developments in information technology, it can hardly be denied that the above and other related concerns add up to a formidable agenda for urban information system, particularly in relation to the existing data base and analytical capabilities. Purpose of this paper is to briefly discuss certain conceptual issues in development of urban information system as a tool of urban development planning in India. A word in elaboration of the system's rationale in above context should put the issues in perspective.

*This paper is based on a note earlier prepared by the author on the framework of urban and regional information system for the TCPO's Steering Group report on the subject (1981). The views expressed herein are his own and do not necessarily represent those of the organisation he is associated with.

RATIONALE FOR URBAN INFORMATION SYSTEM

In response to steadily mounting pressures of population growth, particularly in large urban settlements, a number of policy and planning initiatives have been taken at various levels over the years. Starting with formulation of Master Plan for Delhi in the late fifties there has been a substantial enlargement of planning activity with brunt of burden having been borne by the state governments, as many as six hundred city development plans have so far been prepared by various states. Though a well articulated national urban policy has yet to be formulated, the central government has also initiated a number of policy measures and supporting programmes in successive National Plans, the latest being the schemes for Integrated Development of Small and Medium Towns and Environmental Improvement of Slums. Formulation of city/town development plans in particular has generated a modicum of information though much of it, concerned as it is with regulation of land use and development, lacks in analytical depth. Over the years research on specific aspects of urbanisation and urban development has supplemented the small body of knowledge in this context but it has yet to cover considerable ground in several areas of vital importance to make a notable impact on the state of art in the field. Practically no information is available about the end results of the development plans and other programmes carried out for specific areas. Even a rudimentary attempt to monitor the process of change at local level confronts one with several gaps in information (particularly causal relationships critical to such change) that decision making in management of change becomes a stupendous task. Lacking as they do in spatial perspectives and certain data requirements peculiar to the needs of urban dynamics, most of the statistics devised to support the national planning efforts are not of much analytical value in this regard. A stage has reached when planning and management of urban settlements should be treated as an adjunct to the national task of development and not as an isolated activity. As the process of development accelerates the pressures for policy and planning action at urban and regional level would increase; so would be the need to systematically monitor change in urban systems and subsystems. One cannot perhaps do better than cite the views of a UN Expert Group in this context:

A close monitoring of the process of change taking place in the human settlements' environment has become an essential pre-requisite for formulating policies, programmes and strategies for development. The failure to predict and guide the social, economic and environmental changes associated with urbanisation has exacerbated the problems for both developed and developing nations. The

dynamics of the urban environment therefore be evaluated carefully and monitored closely if rational decisions, appropriately and coherently adapted to the overall requirements of development, are to be made.¹

Recently, the Planning Commission's Task Force on Housing and Urban Development concerning Seventh Plan has, in the context of measures to cope with the needs of urban development, also recommended setting up of an Urban Information System (URBIS).

CONCEPTUAL BASIS

While desirability of urban information system as a tool in decision making is well taken, a meaningful attempt in this respect requires resolution of certain basic issues. What should be the conceptual framework of the system? What should be the major areas of concern and a real unit of reference? How to go about the process of data selection? Yet another issue is the institutional line up for the system.

A reference to existing literature on the subject brings to light three concepts which have found varying acceptance and/or application in certain developed countries. These relate to: (a) urban information system, (b) urban indicators, and (c) city data banks. City data banks are meant to facilitate efficient management operations and involve mainly collection and systematic storing and retrieval of data for one or more than one departmental services. Urban information systems are purported to be running monitors of changing conditions to support community decisions in planning and policy context. As a noted planner has aptly put it:

An information system is an organised method of using data for a specified purpose; in planning, this purpose is to support policy making for development and problem resolution. An information system may require a system of computerised data processing but sits on top of it.²

Urban indicators, which represent an out growth of a more articulate movement on social indicators, measure changes in specific phenomena

¹Report of the Ad hoc Group of Experts on Indicators of the Quality of Urban Development, UN, New York, 1977, p. 1.

²Doris B. Holleb, "*Social and Economic Information for Urban Planning*", 1970, p. 65.

in relation to established goals.³ Substantial amount of literature that has accumulated on social indicators over the past two decades or so reflects the extraordinary interest generated by this concept. Indicators and information systems represent similarity of efforts but differences in emphasis and articulation. As an urban expert has remarked:

Much of the current work on urban information systems emphasises maintaining current accounts of changes of socio-economic and land use data for small areas whereas urban indicators are more carefully constructed variables that measure movement toward or away from a goal or standard.⁴

It may be mentioned here that these concepts (specifically indicators and information systems) are not the products of certain isolated developments but form a part of moves towards rationalisation of planning process (e.g., Systems Approach, PPBS and Structure Plans) and that in practice, depending on the objectives under consideration all the three or two of the above formats can be combined. There is evidence to suggest increasing articulation of these concepts; much of this being the result of certain well conceived studies in context of sub-regional (micro) or national level (macro) applications.⁵ However, it can hardly be over-emphasised that the latter can at best, provide some conceptual leads and there is nothing like whole-sale transfer of a framework evolved in a different cultural context.

It is clear from the foregoing that the *raison d'être* of the information system is to aid decision-making. But decision-making is not an exercise in vacuum, it takes place within certain frame of reference. So far as spatial development is concerned, hitherto urban settlements, particularly larger ones, have been at the centre of public attention, largely though not exclusively in the framework of planned development. As

³Darwin G. Stuart, a noted planning expert has distinguished between three types of indicators: (a) general urban indicators (defined as measures of aggregate well-being among the members of community), (b) impact indicators (more detailed type to assess the effectiveness of public agency plans and programmes, and (c) performance indicators (most detailed type of the three, dealing with managerial and financial aspects of public agency plans).

⁴Kenneth J. Dueker, "Urban Information Systems and Urban Indicators", *Urban Affairs*, Quarterly, December 1970, p. 175.

⁵Among others, particular note may be taken of a recent (1972) British Study Group report on "General Information System for Planning" that deals with information support for local bodies engaged in Structure Planning. Yet another valuable contribution in American context is *Social and Economic Information for Urban Planning* by Doris B. Holleb (1970). Besides, UNRISD and the UN University have recently undertaken major research projects on Social Indicators generally in national frame of reference.

to the delineation of information inputs for planning process at city level, it begs certain questions about the planning function itself. With relevance of master plan approach in serious doubt it is a moot point as to what framework of planning should be considered for the purpose of information system. Further, it would be appreciated that there is no single planning prescription to suit the needs of the whole range of urban settlements. Depending, therefore, on the planning approach adopted for a particular sub-system, the analytical and corresponding information needs would tend to differ.⁶ As such to start with it seems appropriate to develop a selective system of monitoring the process of change for different types of urban settlements with reference to certain selected variables. The selection of variables has to be given sufficient fore-thought so as to yield an insight into the status of human environment in the settlement and to highlight significant areas of concern in planning and policy context.

Delineation of major concerns in this context has of necessity to be based on the imperatives of emerging urban situation. In the first place, grasping dynamics of urban growth in different regional situations itself is a major concern which carries important implications for urban development. Obviously 'growth' here means not merely growth of city's population; employment and production are more important variables. However, instances are not lacking where vigorous growth conditions have not in themselves led to the creation of satisfactory living environment for bulk of city's population. As such, other aspects of great concern in urban situation are : efficient spatial organisation both to improve living and economic environment in formal and informal sectors; improvement of social and economic situation of economically weaker sections of society which constitute bulk of urban population, expansion of employment opportunities consistent with growth in labour force, trends and patterns of urban investments, mobilisation of resources to keep pace with growing infrastructure needs, efficient and equitable use of limited land resources. These aspects which at best are suggestive can be broadly grouped as three inter-related components of urban system, viz., social and economic environment, physical environment including natural assets and service networks.

⁶It seems relevant to cite in this context views of Dr. Stuart:

In general no single list of preferred or recommended planning oriented data elements for an urban information system can be easily identified. Not only are planning functions and problems are structured differently in different urban areas so that comparability in data requirements between those areas is unlikely, but the planning process within any urban area is continually evolving so that new or unexpected data demands are likely to emerge periodically.

—DARWIN G. STUART, *Systematic Urban Planning*, 1976, p. 270.

Cataloguing of major concerns on the above lines can form the basis of working out suitable variable with due regard to relationships between various variables in the context of a system. Conceived in this manner, the system hopefully should give a fairly good information handle to the urban analyst at local level, where most of the decision making processes are concentrated. At the same time, since the system is to operate on a continuous and cross-sectional basis, it should go a long way in meeting the needs of decision making at national and sub-regional levels. The information system design has to be reviewed periodically, particularly to get a feedback on variables and to ensure that the quality of the system improves with its use.

Though it would be pretentious to suggest that the information system outlined above can fully meet the more rigorous analytical requirements for planning purposes, it seems relevant to obliquely refer to the four basic steps, involved in systematic planning and programming, if not for anything at least to appreciate the nature of information elements in this context. As an iterative process broadly these include: (a) identifying goals and objectives; (b) identifying alternative programmes and policies; (c) predicting/analyzing relative levels of effectiveness; (d) evaluating alternative programmes and policies.⁷ Apart from limitations of data, lack of suitable analytical models and techniques (especially for steps (c) and (d) above) hinders the pursuit of above line of approach in Indian situation. Judicious use of computer technology should facilitate research in this area.

GEOGRAPHIC REFERENCE AND DATA SOURCES

Having spelled out what could be called the conceptual underpinnings of the information systems, there remain to be resolved two further questions in this regard, viz.: (a) identification of the areal unit for data collection, and (b) the data sources. In functional terms, the smallest areal unit in the urban settlement spectrum is the 'neighbourhood'; the largest being the 'metropolitan area'. An important problem that arises in this context is that the growth of an urban area does not respect particular jurisdiction, resulting in lack of correspondence between 'functional area' and administrative boundary in many instances. Further, the process of areawise aggregation or disaggregation of data is not without its limitations. One could not perhaps do better than quote in this regard the following from a well known reference.

The movement from 'macro-data' for the (metropolitan) area as a

⁷For further discussion in this regard refer Darwin G. Stuart's "Systematic Urban Planning" and the UN Report of the Ad hoc Expert Group Meeting on Indicators of the Quality of Urban Development, March 1976.

whole to 'micro-data' for small sub-districts is rarely a straightforward process of simple disaggregation even when there is sufficiently detailed small area data to make the move possible. A number of critical qualitative shifts are usually involved and should be considered . . . Many social and economic processes (and related spatial process), that can be correctly monitored at one level or another are simply not additive. The whole is different than sum of its parts and rarely the parts can be related to the whole with any precision.⁸

In view of these considerations in urban context, it seems essential to concentrate on three geo-references:

1. Metropolitan area,
2. City/Town Corporate area, and
3. City/Town Ward

Since there are operational problems of demarcating 'neighbourhood' uniformly in different range of urban settlements, as a compromise, the census ward is taken to be a close approximation. Further, it is a matter of gratification to note that the 1971 census recognised the importance of data base in the form of 'urban agglomeration' and 'standard urban area' which though not strictly adhering to the metropolitan area concept, at least provide a basis for collecting certain rudimentary information. It is quite worthwhile to further improve on the afore-mentioned census concepts so as to be of greater use for the information system.

Despite selective nature of the information system the data requirements it generates add up to a fairly tall order. Hitherto major part of data requirements for urban analysis have been tapped mostly from the census, NSSO, urban local bodies records, supplemented by sporadic surveys carried out from time to time. Apart from the qualitative and quantitative changes required in the secondary data sources, it seems necessary to build up/reinforce in a systematic manner certain primary sources particularly with regard to urban incomes and assets, employment, accessibility of services and amenities, characteristics of informal sector, registration of land titles, land use and land value among others. In this connection the importance of multi-purpose household surveys can hardly be over-stressed. Among other things, this calls for more effective planning and coordination among the agencies concerned than has been the case hitherto.

As to the organisational aspects of the system, limitation of re-

⁸Doris B. Holleb, *op. cit.*, p. 56.

sources, skills among other factors would warrant making a limited but systematic start at national level. TCPO has already been identified as a nodal agency for this purpose. Unfortunately, work in this regard has not progressed beyond certain preliminary steps.

CONCLUSIONS

In concluding this rather rudimentary exposition of the issues involved, it may be stated that though there is a clear case for the establishment of urban information system in India, the crucial question is what operational framework in the circumstances can make most effective contribution in the planning and policy context. In a situation where information technology has far outpaced our knowledge about analysis and management of urbanisation processes, without sufficient forethought to conceptual and technical ingredients of the system there is a risk of making less than efficient use of limited resources. Since selectivity and not comprehensiveness is the hallmark of a good information system, in order to make the best of limited skills and resources it would be only desirable to initially focus on certain issues of vital concern (say for instance, monitoring of urban land prices) and then build up the system gradually. □

Urban and Regional Information System in Planning

GIRISH K. MISRA

IT IS unfortunate that even after about four decades of Independence, the country does not have any comprehensive framework to formulate and implement various urban and regional development programmes. The reason for this negligence owes a great deal to the fact that urban planning in its entirety and regional planning to a great extent are state subjects in our country. Unless these are made the concern of the central government in our Constitution, such a policy framework cannot come into existence.

Also, planning strategies in the country are characterised by *ad hoc* decisions which are often politicised. The absence of formal approaches to urban and regional planning is, by and large, responsible for the scant attention paid to the development of a proper information base in urban and regional centres. It is only, of late, that in view of the difficulties faced by planners in the formulation, implementation, monitoring and evaluation of the city master plans and district plans, attention has been focused on the need for developing an urban and regional information system for planning at the national, state and local levels in the country.

URBAN AND REGIONAL PLANNING FRAMEWORK

One of the fundamental aspects always observed in developing any planning framework is the dualism to separate urban with its regional field. Both, in fact, are counterparts and as such they should be considered together for designing an Information System. The Annual Conference of the Chief Town Planners of the States also suggested, way back in 1976, the establishment of an Urban and Regional Information System at various levels of spatial hierarchy. A Steering Group was set up by the Town and Country Planning Organisation (TCPO) which looked into the questions of data sources, needs, format, specific data management system through computers, etc. Following the sugges-

tions of the Group, pilot studies were conducted in two towns under Integrated Development of Small and Medium Towns (IDSMT) scheme in order to have a grasp of the problems of data availability and use at the local level. But, in case we intend to develop an Urban and Regional Planning framework for the country as a whole then such data identification has to be done at the central and state levels as well.

In fact, no purpose will be served if the economic planning model is continued in times to come. It is an abstract model which lacks a development approach. In this model, emphasis is laid more on the achievements of various programme targets set at a particular point of time rather than the performance of these programmes. As a result, the implementation of development programmes becomes very poor. This may lead to a rise in the Gross Domestic Product (GDP) but the benefits of the programmes may not be distributed equally among different sections of the society. A large chunk of the poor section may still remain unaffected by the benefits of these programmes. Although attempts have been made since the Fourth Five Year Plan to incorporate the concepts of regional/spatial planning to achieve goals of social justice, equity and a value system but without switching over from the present economic planning model to the spatial planning model. It is, therefore, necessary to develop the future Urban and Regional Information System (UBRIS) at the: (i) national, (ii) state, and (iii) local levels within the spatial planning framework to achieve these goals. At present this framework consists of the above three levels only but, later on, attempts can be made to incorporate in it the macro-economic and other levels as well (Fig. 1).

National Level Information System (NLIS)

In the first phase of the implementation of such an Information System, the information base of the national system may not be very comprehensive either in terms of data input or the proposed output structure. In order to formulate an urban and regional development policy in national planning with special reference to the federating states, an inventory of the spatial and locational pattern of the key sectors of economy is needed. Such a task can be fulfilled when data formats at the grassroot level are in conformity with the national and state requirements. The standardisation of these data formats is also essential in the light of the suppression of certain information by various ministries which is very useful for evaluating the success and failure of different centrally sponsored schemes at the national level. The NLIS will have the provisions for aggregating data at the national level and disaggregating them at the next lower level.

UBRIS IN THE CONTEXT OF SPATIAL PLANNING HIERARCHY

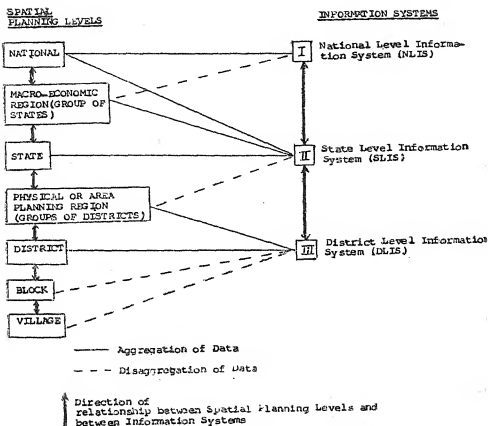


FIG. 1

State Level Information System (SLIS)

On the basis of the analysis of the above inventory at the national level, the country may be divided into 5 or 6 macro-economic regions consisting of the groups of federating states. Contiguity, inter-state and intra-state relationships and the resource potential for developing district regional economies could be the considerations in regional delineations. These would be the regions for formulating an urban and regional development strategy in national planning. The State Level Information System will be provided arrangements for aggregating information for these macro regions. As far as states are concerned, information requirements will fall in line with the centre according to the relative importance of resources and activities. It is at the sub-regional level within the states that a distinction between economic space with emphasis on locational dimensions of the national plans and the physical space with focus on locational dimensions of the regional plans can be made. The two spatial dimensions are, however, complementary. In the absence of macro-economic regions (group of states) and physical planning regions (group of districts) in our country, it is not possible to integrate these two dimensions of the development plans for eliminating the sign of polarisation of the economy and regional

imbalances in our country. The Information System at the state level, will possess the provision for aggregating data at the macro-economic regions and the state, and disaggregating data at the sub-regional levels.

District Level Information System (DLIS)

With the broad framework of sub-regional plans for different states, the framework for plans at District and Block levels should encompass two important spatial dimensions: one is a framework for land use planning both at the urban and regional levels and another one is the integration of villages around cities and towns. The District Level Information System will have provisions for aggregating data at the state and sub-regional levels; segregating them at city and town levels and disaggregating them at the block and village levels (see on Fig. 1).
p. 12.

The above planning framework and Information System will be organised such that in the beginning information can be aggregated or disaggregated according to various requirements at the national, state and district levels. Later on when macro-economic, physical planning, block and village levels are included in the planning system, the requirement of information at these levels can also form part of the Urban and Regional Information System. It is only at this juncture, one can think in terms of introducing a 'bottom-up' planning process which will enable us to formulate plans based on the requirements of people and reflect them in the policy making at the national and state levels.

DATA IDENTIFICATION AND COMPARABILITY

Data requirements at the national level have to be different from the subsequent levels of Information Systems. Attempts, therefore, should be made to identify data requirements at the national, state and district levels so that accordingly data can be aggregated and disaggregated. Data identified at the national level have to be in conformity with the data to be compiled at the state and local levels. However, due to definitional discrepancies and changes in coverage under different categories at various points of time, there are serious problems of comparability. These problems can be overcome either by utilizing disaggregated data that are available in unpublished forms or by conducting a few research projects to make these temporal data comparable.

The comparability of data is also affected seriously by the attitude of various states using different formats and administrative units for the collection and compilation of data. Also the periodicity of data in different states varies a great deal. Data gaps in relatively backward states have assumed an alarming proportion. A continuous dialogue

between the UBRIS and state/local agencies is a must for developing common formats for data collection and compilation. The UBRIS can also go to the extent of incorporating certain data in the system which are not published by the central agencies. The migration data and age sex break-up published by the *Census of India* are such examples. These data can be collected either by requesting the heads of such agencies to retabulate the data or by making the original schedules available to the UBRIS.

To sum up, the establishment of UBRIS is a gigantic task which involves various steps. The organisation and management of data for the purpose require immediate efforts in specific areas and establishment of channels of communication with different agencies for their collection and compilation. The first and foremost task in this regard is to entrust the responsibility of establishing UBRIS to a national centre like the Centre for Urban Studies of Indian Institute of Public Administration (IIPA) which has a long standing in the field of urban and regional development research and training activities. ☐

Setting Up an Urban Information System— The Tasks Before the Apex Body

AMITABH KUNDU

THE CONCERN

URBAN PLANNING strategies in India have largely been matters of *ad hoc* decisions based on *a priori* and often antiquated concepts of city structure and on norms generally exogenous to the planning process. The absence of formal approaches to urban planning in India is, to a great extent, responsible for the scant attention paid to the development of a proper urban information base and *vice versa*. In view of the difficulties encountered in the formulation and implementation of the City Master Plans in the sixties and the seventies and also the shaky empirical base for many of the policy decisions relating to urban development, attention has lately been focused on the need to develop an Urban Information System.

The past two decades have witnessed a growing emphasis on the need to design a National Urbanisation Policy within the framework of the overall development plan, to formulate and implement various infrastructural and housing development programmes in coordination with the sectoral schemes and to prepare City Master Plans including the land use plans taking into consideration the socio-economic activities in the cities and their hinterland. This would call for an integration of the sectoral and the spatial approaches to planning within a formal structure which is possible only if a well developed information system is made available. It may be mentioned in this context that while the transfer of resources from the centre to the states through the Finance Commission to meet the resource gaps of the urban local bodies is being contemplated in this country for some time, the absence of adequate and reliable information on municipal finances on a temporally and cross sectionally comparable basis, has posed serious constraints. The magnitude of houseless population is not known exactly and there are several estimates of the number of persons not having the basic civic amenities like water supply and sewerage system. It is also important

that much of the data collected and processed through agencies at different spatial levels are wasted in the absence of an information system. Although considerable expenditure is incurred in the collection and compilation of this data, a very small fraction is actually used or can be used in the planning process as the formats used for data collection by the different agencies are not standardised. With the establishment of the Urban Information System, one expects that these problems of data management would be taken care of and the planning procedures in the field of urban development would tend to get formalised. This would open up the possibility of greater and rigorous use of quantitative data, as opposed to subjective perceptions, in the working out of specific schemes and proposals for urban development as of today.

The Annual Conference of the Chief Town Planners of the states had suggested, back in 1976, the establishment of an Urban and Regional Information System (URBIS) with sub-systems at various levels of spatial hierarchy. Ever since, a number of workshops, seminars, meetings, etc., have been held and several expert groups have visited a number of West European countries to study their "well developed regional information system," and evolve an operational framework for our country. A Steering Group was set up by the Town and Country Planning Organisation (TCPO) which looked into the questions of data sources, needs, format specifications, data management through computers, etc. Following the suggestions of this Group, pilot studies were conducted for two towns covered by the Integrated Development of Small and Medium Towns (IDSMT) scheme, in order to have a grasp of the problems of data availability and their use at the local level. The help of international agencies like the UNESCO and UNEP are also being sought for the purpose. With all these efforts, however, the project is yet to take off the ground.

ISSUES AND RECOMMENDATIONS FOR THE SETTING UP OF THE URBAN INFORMATION SYSTEM

The following are the major issues that must be resolved for the establishment of the Urban Information System in the country. A few suggestions for the establishment of the Apex sub-system have also been given below.

In view of the urgency of the need to have an Urban Information System, the proposal to set up an apex body at the central level (National Information Sub-System) may be given immediate attention so that it can provide meaningful inputs in detailing out the urban component of the seventh and the preparation of the subsequent Five Year Plans. In the first phase of its implementation, the information base

at the national level may not be very comprehensive either in terms of data input or the proposed output structure. It can start off by targeting at the systematic compilation of a few well defined output parameters (indicators) that are generally used in the formulation and evaluation of urban plans including the programmes currently undertaken by the concerned ministries/departments in the centre and the states. Also, in the initial stages, the focus may be on the collection, screening and processing of the existing data and not on obtaining fresh data through specially designed surveys or projects.

In the light of the fact that substantial amount of information on urban centres are available with a few national level agencies like the Census of India, The National Sample Survey Organisation, the Central Statistical Organisations, etc., the apex body (at the central level) would do well to start compiling these data systematically on a comparable basis. However, because of the definitional discrepancies and changes in the coverage under different categories at different points of time, there are serious problems of comparability. The census data on workforce and manufacturing establishments classified in nine industrial categories is just one example. It is possible to obtain "somewhat comparable" estimates both for workers and establishments for 1961 and 1971 (and hopefully for 1981 as well) at the district or tehsil level for urban and rural areas separately for different industrial divisions and sub-divisions, using the published data. This would require recompilation of 1961 data based on the classification scheme (National Industrial Classification) followed in 1971, using the disaggregative information at three digit levels. The details of the computation procedure are discussed in the concluding section of the paper as an illustration. Similarly, data can be generated for the major industrial groups (NIC) for all the urban centres. Building up of this data-base for the towns and cities would not call for a massive effort as disaggregated data are available in unpublished form. It is recommended that a few projects may be sponsored to research institutions that should make the town level comparable data available to the national sub-system (Apex body).

In respect of certain important variables, town level figures are collected but not published by the national level agencies referred to above. The examples in this regard are the migration data and the age sex break-up of the population compiled by the *Census of India*. Also, the National Sample Survey Organisation (NSSO) and the Central Statistical Organisation (CSO) publish data only at the state level. It is suggested that the heads of these agencies be approached through proper authority with a request to retabulate the necessary data at the district and town levels or at least to make the original schedules or tapes available to the apex body of the URBIS so that the relevant

data can be retrieved. Much of the data from the Annual Survey of Industries can be brought out at the town and taluka level except for a few industrial groups having a very small number of units in the town/taluka (due to the secrecy clause of the Government of India).

It would be inefficient and therefore undesirable to have the information relating to macro, meso and micro levels at the central unit (of the URBIS), both from the point of view of storage/retrieval and the convenience of the users. The sub-systems at the levels of the states and local units must therefore be designed in a hierarchical structure so that information can be aggregated or disaggregated systematically, when it is necessary and feasible. This would alleviate the need to compile and store data relating to say intracity variation of certain facility in the national sub-system. It should, however, be possible for a user to know the data availability with the sub-systems at the regional and local level from the national sub-system and *vice versa*. The data should be computerised in a format so as to enable easy aggregation of any indicator from smaller spatial units to the larger units, *viz.*, from towns and villages to talukas, districts, states and the country.

The problem with regard to the data collected by the agencies at the state level is more serious and would necessitate much more work. This is because different states are using different data formats and areal basis for data collection. Also the periodicity of data in different states are different and in relatively backward states the data gaps assume serious proportions. To obtain comparable figures, therefore, a continuing process of dialogue between the URBIS and the state/local level agencies must be started. For this purpose it would be necessary to examine each piece of information separately asking specific questions regarding periodicity, format, reliability, primary sources, etc., to standardise the definitions of each concept and to design effective channels of data compilation and coordination among the concerned agencies.

The apex body of the URBIS, thus, would have to take effective steps in standardizing the concepts used by different agencies in data collection and in suggesting formats and coverage for different items of information. It would have to exercise judgement with regard to the selection of appropriate agencies from whom the data are to be collected. In case of multiple agencies, collecting and providing similar data, the URBIS must evolve a methodology for obtaining comparable estimates. It would therefore be functioning as the coordinating unit between the policy makers and data collecting agencies.

In order to design the format for retabulation for bringing about standardisation and efficiency in the data collection and to identify specific research projects for this purpose, a small group may be constituted by the Apex body of the URBIS. This would comprise scholars,

experts and officials from the national level data agencies, the institutions that have done work in building up of the urban data base and the local level units that are associated with the data collection pilot studies. Each expert can be assigned specific responsibility of analysing the data problems and of suggesting possible ways of overcoming them in his own area of research. The group can then make further recommendations regarding organisation and management of data in the specific areas and the channels of communication to be established between different agencies for their collection and compilation.

To be able to communicate the output needs to the agencies at the microlevel and get proper feedback (inputs) from them, it is necessary that the apex body of the URBIS designs and helps in conducting short-term training programmes. The primary objective of these programmes would be to let the local and state level officials appreciate the need and usages of the data and be familiar with some of the problems of data non-comparability. This would go a long way in eliciting precise and meaningful information from the local levels and in establishing appropriate channels of communication.

In order that URBIS functions effectively and provides inputs in planning, monitoring and evaluation, it is necessary that it gets adequate financial and administrative support.

A SCHEME TO RETABULATE THE WORKFORCE DATA FROM THE POPULATION CENSUS BY THE APEX BODY—AN ILLUSTRATIVE EXAMPLE

The industrial classification scheme adopted for the tabulation of the establishment and workforce data in the 1971 census¹ and its correspondence with the scheme adopted in the 1961 census are mentioned in a few of the General Economic Tables of the 1971 census. It is unfortunate that along with the workforce data no indication is given regarding these changes—not even in a footnote and consequently many of the unsuspecting users have either missed or ignored these as of marginal significance.

A scholar uninitiated to the census classification schemes is often led to believe that the only problem in the usage of the workforce data of 1961, 1971 and 1981 censuses is with regard to the category III, viz., *Mining, Quarrying, Livestock Forestry*, etc., of 1961 which has been divided into two: one for *Mining and Quarrying* and the other comprising the rest. The *Introduction to the Primary Census Abstract*, however,

¹The data in nine categories of workers are available for every town and village and all higher level spatial units for 1961 and 1971 censuses. Unfortunately, these would not be published for the 1981 census. The Tabulation Plan for the 1981 census indicates that the data in nine categories would be published only upto the district level of disaggregation.

mentions another change in a very inconspicuous manner. It is observed that the household activities covering cattle rearing, bee keeping, orchardry, plantations, etc., that were parts of the Household Industry in 1961 are not included in the Household Manufacturing Sector in 1971.

This evidently gives the impression that all the other categories of the workforce are comparable over the different censuses which unfortunately is not the case.

In order to understand discrepancies in the data from different censuses, it is necessary to examine the changes in the coverage of various categories of workers. In classifying the workers and the manufacturing establishments in the 1961 census, *Indian Standard Industrial Classification* (ISIC), evolved by the Director General of Employment and Training in 1958, was adopted. However, the 1971 economic data was tabulated using the *National Industrial Classification* (NIC) of 1970. The ISIC has 10 divisions, 45 major groups and 343 minor groups. The NIC, on the other hand, has 10 divisions, 66 major groups and 386 minor groups. One can note that with the adoption of the NIC, the categorisation has become simpler and intuitively more appealing but all the same, this has created serious problems of comparability with the past data.

It is important to mention that although the names of some of the categories have remained, by and large, unchanged over time, their coverages vary significantly that have caused confusion. Based on the examination of the details of the major and minor groups included in various workforce categories, Table 1 has been prepared which indicates the adjustments needed for comparability of the 1961 census data with those from the subsequent censuses. It is clear that only three categories, viz., Non-household manufacturing, Construction, Transport, storage and communication have not changed in terms of their coverage. For the rest, however, there are some changes and it would be hazardous to make temporal comparisons or draw inferences regarding the trend without ascertaining the magnitude of the discrepancy.

It may be seen in Table 1 that the minor groups 000, 001, 002, 003, 004 and part of 005 were taken out of the industrial divisions and merged with the agricultural workforce, viz., cultivators and agricultural labourers in 1961. To that extent the workforce in agriculture as per the 1961 census would be overestimates compared to the corresponding figures from 1971 and 1981 censuses. It is unfortunately not possible to assess the degree of overestimation or make appropriate adjustments to ensure perfect comparability since the figures for these minor groups have not been published. However, the description of these minor groups in the ISIC and NIC suggest that these cover roughly similar items of production in different censuses.

TABLE 1 CORRESPONDENCE BETWEEN THE WORKFORCE CATEGORIES OF 1961, 1971 AND 1981 CENSUSES

<i>1971 and 1981 Census Category</i>	<i>1961 Census Category</i>
I. Cultivator II. Agriculturer Labourer }	Cultivator (I) and Agriculturer Labourer (II); Subtract (000), (001), (002), (003), (004) and a part of (005).
III. Livestock, Forestry, Fishing, Hunting, Plantation, Orchards and Allied Activities	Division (0); add agricultural services
IV. Mining and Quarrying III and IV (Combined)	Division 1 Mining, Quarrying, Livestock, Forestry, etc. (III); add household based activities of division (0) and (1); add uncovered segment of (000), (001), (002), (003), (004) and a part of (005) and add agricultural services
V. (a) Manufacturing Processing Ser- vicing and Repairs—Household industry	Household Industry (IV); subtract Divi- sion (0 and 1)
(b) Manufacturing, processing, Servicing and Repairs—Non- household industry	Manufacturing other than household industry (V)
VI. Construction	Construction (VI)
VII. Trade and Commerce	Trade and Commerce (VII); subtract (697) and add (840) and (882)
VIII. Transport, Storage and Communi- cation	Transport, Storage and Communication (VIII)
IX. Other Services	Other Services (IX); subtract (840), (882) and agricultural services and add (697)

NOTE: The ISIC Division/Major Group/Minor Group and the 1961 Workforce Categories have been shown within parentheses.

It has been mentioned above that the category *Mining, Quarrying, Forestry and Fishing* of 1961 have been segmented into two in the subsequent censuses. A simple addition of the figures in the two corresponding categories in 1971 or 1981, however, would not give figures comparable with the 1961 category. This is firstly because the minor sub-groups from 000 to 004 and a part of 005 have been excluded from this category in 1961, as mentioned above. The second and more important reason for the discrepancy is that the category includes only the non-household activities in 1961. To make the figures comparable, one must combine the household based activities engaged in Mining, Quarrying, Forestry and Fishing together with the corresponding non-household activities in 1961. Finally, it may be noted that the NIC major division 0 includes division (0) and a segment of division

(8) of the ISIC. The *Agricultural Services* that were parts of division (8) (and hence of other services) in 1961 have been subsequently added to *Mining, Quarrying*, etc. Unfortunately, once again, the data on workers engaged in *Agricultural Services* are not available for the year 1961 and consequently appropriate adjustment in the data on agricultural workers and other services cannot be carried out. The division (I) of ISIC, however, would be comparable to division I of NIC and these would give comparable figures for *Mining and Quarrying* at different points of time.

The adjustments necessary to obtain comparable estimates of workers in *Household Industries* are now very clear. This category in 1961 comprises the household based activities of four ISIC divisions (0, 1, 2 and 3). The *Household Manufacturing* sector in 1971 or 1981, on the other hand, cover only the divisions 2 and 3. Exclusion of the figures for workers in the two non-manufacturing divisions, viz., (0 and 1) from that of the *Household Industries* of 1961 would render it comparable with the figures for *Household Manufacturing* from the subsequent censuses.

Trade and Commerce in 1971 and 1981 include services rendered by *hotels, boarding houses, eating houses, cafe, restaurants and similar other organisations to provide lodging and boarding facilities* [minor group (882) of the ISIC] and the *Legal services rendered by barrister, advocate, solicitor Mukteer, pleader, mukerie, munshi, etc.*, (840) and excludes the *distribution of motion pictures* (697). For comparability, therefore, the workers in the minor groups (840) and (882) must be added to the workers in *Trade and Commerce* in 1961 and those in (697) must be subtracted. Exactly, opposite adjustments would have to be done with respect to the workers in 'Other Services', viz., adding the workers in (697) and subtracting those in (840) and (882). Also, the agricultural services ought to be taken out of the other services, in 1961. It may thus be seen that the 'other services' in 1971 or 1981 was a much smaller category in terms of its coverage than in 1961 as several of the specialised services were excluded from it (division 8) and added to the sector which receives the services. The revised figures of the workers in various categories for the year 1961 for the total and urban areas are given in Tables 2 and 3.

The total unconcern of the Census Organisation regarding the inappropriate usage of their data during the past one and half decade strikes as surprising specially since this is primarily due to the inadequate care taken by them in the presentation of their tables.² In view

²It is indeed alarming that the scholars working in the census organisations have also made similar errors in their analysis involving temporal comparisons, as may be seen in the studies of Ambannavar (1977) and Mitra (1980 and 1981).

TABLE 2 ESTIMATED NUMBER OF WORKERS IN VARIOUS CENSUS CATEGORIES IN 1961 COMPARABLE TO THOSE IN 1971 CENSUS (ALL AREAS)

	(Original) Workers in Household Industry	(Revised) Workers in House- hold Manu- facture Industry	Per cent Changes (2) over (1)	(Original) Workers in Mining, Quar- rying, Live- stock, Fish- ing, Hunting, Forestry, etc. (non-house- hold)	(5) Workers in Agri- culture, Livestock, Forestry, Fishing, Hunting, etc.	Workers in Mining and Quarrying	(Revised) Workers in Mining, Quarrying, Livestock, Fishing, Forestry, Hunting, etc. (Total)	Per cent change (7) over (4)
INDIA	12,031,087	9,931,095	-17.45	5,221,398	6,403,136	918,254	7321,390	40.22
AP	1,815,154	1,427,660	-21.35	560,958	858,058	90,394	948,452	69.08
Assam	280,353	279,891	-0.16	518,100	511,709	6,853	518,562	0.09
Bihar	1,057,900	901,473	-14.79	652,183	537,385	271,225	808,610	23.99
Gujarat	555,606	311,380	-43.96	104,850	328,411	20,665	349,076	222.93
J&K	95,628	61,602	-35.58	25,479	59,231	274	59,505	133.54
Kerala	488,562	482,668	-1.21	487,359	470,368	22,885	493,253	1.21
MP	841,395	791,565	-5.92	492,287	445,726	96,391	542,117	20.12
Madras	1,206,812	1,140,605	-5.49	435,498	456,913	44,791	501,704	15.20
Maharashtra	832,169	742,934	-10.72	406,391	444,137	54,489	498,626	22.70
Mysore	708,710	528,232	-25.46	336,076	468,172	48,382	516,554	53.70
Orissa	530,809	457,271	-13.85	131,996	178,317	27,217	205,534	55.71
Punjab	540,849	404,996	-25.12	66,150	196,692	5,311	202,003	205.37
Rajasthan	598,182	337,929	-43.51	171,081	400,743	30,591	431,334	152.12
UP	1,801,746	1,457,912	-19.08	171,851	503,063	12,630	515,693	200.08
West Bengal	487,311	441,578	-9.38	577,881	463,900	159,714	623,614	7.91

(Original) Workers in Trade and Com- merce	(Revised) Workers in Trade and Com- merce	Per cent Change (10) over (9)	(Original) Workers in other Services	(Revised) Workers in other Services	Per cent change (13) over (12)
(9)	(10)	(11)	(12)	(13)	(14)
7,653,571	8,579,523	12.10	19,572,479	18,646,522	-4.73
798,147	884,712	10.85	1,733,585	1,647,020	-4.99
184,707	196,913	6.61	424,251	412,045	-2.88
522,949	561,894	7.45	1,456,306	1,417,361	-2.54
411,156	461,806	12.32	846,653	796,003	-5.98
33,620	36,864	9.65	141,657	138,413	-2.29
321,933	427,320	32.74	1,423,293	1,317,905	-7.40
403,637	423,771	4.99	1,098,127	1,077,993	-1.83
758,307	907,060	19.62	2,357,573	2,208,814	-6.31
856,050	997,312	16.50	1,617,031	1,475,769	-8.74
391,020	480,457	22.87	1,004,630	915,193	-8.90
147,462	160,875	9.10	1,025,968	1,012,555	-1.31
385,471	413,888	7.37	931,377	902,963	-3.05
288,157	305,867	6.15	678,614	660,904	-2.61
1,062,882	1,129,731	6.28	2,710,081	2,643,232	-2.47
872,204	947,229	8.60	1,549,637	1,474,612	-4.84

NOTE: Revised estimates for 1961 are comparable with the figures in the corresponding categories of the 1971 and 1981 censuses. The estimates in cols. 5 and 6 are comparable with the corresponding two categories of 1971 while those in col. 7 are comparable with the sum total of: (a) mining, quarrying, and (b) forestry, livestock, fisheries, animal husbandry, etc., of 1981 or 1971.

TABLE 3 ESTIMATED NUMBER OF WORKERS IN VARIOUS CENSUS CATEGORIES IN 1961 COMPARABLE TO THOSE OF 1971 CENSUS (URBAN AREAS ONLY)

	(1) (Original) Workers in Household Industry	(2) (Revised) Workers in House- hold Manu- facture Industry	(3) Per cent changes (2) over (1)	(4) (Original) Workers in Mining, Quarrying, Livestock, Fishing, Forestry, Hunting, etc.	(5) Workers in Agri- culture Livestock, Forestry, etc.	(6) Workers in Mining and Quarry- ing	(7) (Revised) Workers in Mining and Quarry- ing and Ag. Industry, etc.	(8) Per cent change (7) over (6)
INDIA	2,088,417	1,987,164	- 4.85	664,842	553,633	210,462	764,095	14.92
1. Andhra Pradesh	270,156	259,115	- 4.09	81,344	41,708	30,677	72,385	18.00
2. Assam	18,325	18,276	- 0.27	4,928	4,875	102	4,977	0.99
3. Bihar	100,024	91,289	- 8.73	85,711	28,933	65,513	94,446	10.19
4. Gujarat	102,365	78,971	-22.85	19,297	37,836	4,855	42,691	121.23
5. J&K	13,785	13,606	- 1.30	2,370	2,520	29	2,549	7.55
6. Kerala	47,559	46,052	- 3.17	43,024	43,668	863	44,531	3.50
7. MP	164,414	159,054	- 3.26	77,630	49,946	33,044	82,990	6.90
8. Madras	379,568	375,353	- 1.11	127,022	121,341	9,896	131,237	3.32
9. Maharashtra	237,967	231,323	- 2.79	80,691	69,316	18,019	87,335	8.23
10. Mysore	183,158	172,599	- 5.76	47,446	38,034	19,971	58,005	22.25
11. Orissa	30,201	28,349	- 6.13	12,286	9,325	4,813	14,138	15.07
12. Punjab	72,109	67,901	- 9.60	14,144	20,067	985	21,052	48.84
13. Rajasthan	82,745	77,341	- 6.53	17,619	16,608	6,415	23,023	30.67
14. UP	285,412	270,512	- 5.22	31,751	45,991	660	46,651	46.93
15. West Bengal	66,550	66,407	- 0.21	28,731	16,991	11,883	28,874	0.50

(Original) Workers in Trade and Commerce	(Revised) Workers Trade and Commerce	Per cent change (10) over (9)	(Original) Workers in other Services	(Revised) Workers in other Services	Per cent change (13) over (12)
(9)	(10)	(11)	(12)	(13)	(14)
4,308,477	4,942,752	14.72	8,081,545	7,453,270	- 7.84
335,762	393,190	17.10	669,238	611,809	- 8.58
69,319	77,979	12.49	134,868	126,208	- 6.42
178,214	208,923	17.23	398,920	368,211	- 7.70
258,463	298,209	15.38	459,093	419,347	- 8.66
21,239	24,156	13.73	76,979	74,062	- 3.79
100,793	129,051	28.04	289,683	201,425	- 9.75
244,495	261,837	7.09	455,540	438,198	- 3.81
476,333	567,539	19.15	865,746	774,540	-10.53
641,120	762,569	19.94	1,068,968	947,519	-11.36
234,856	289,896	23.44	499,953	444,913	-11.01
47,175	53,751	13.94	179,345	172,769	- 3.61
236,771	261,557	10.47	408,244	383,458	- 6.07
157,498	172,466	9.50	316,791	301,823	- 4.72
555,497	608,227	9.49	1,014,941	962,211	- 5.19
583,429	642,803	10.36	847,625	788,251	- 7.00

NOTE : Revised estimates for 1961 are comparable with the figures in the corresponding categories of 1971 and 1981 censuses. The estimates in cols. 5 and 6 are comparable with the corresponding two categories of 1971. While those in col. 7 are comparable with the sum total of: (a) mining, quarrying, and (b) forestry, live-stock, fisheries, animal husbandry, etc., of 1981 or 1971.

of the major changes in the tabulation and presentation of the data, it is necessary that the apex body of the URBIS immediately takes up a project to make comparable data available at least in the nine industrial categories for different censuses. ☐

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Urban and Regional Information Systems in India

P. K. S. NAIR

FOLLOWING THE First Master Plan for Delhi, there have been extensive urban and regional planning activities in the country. Financial allocations were made in the Five Year Plans, particularly from the Third Plan onwards, for urban and regional development sector. In 1950s and 1960s, institutional and legislative infrastructures were created for preparation and implementation of plans and programmes for urban areas and regions. These planning activities required support of large amount of data and detailed maps. Experience indicated problems associated with data acquisition, such as accessibility, reliability, time lag, compatibility, data gaps, etc. Considerable time was involved in the collection of data from primary and secondary sources and this delayed plan preparation. There was no system available to maintain the data and update them periodically. It was felt that an appropriate statistical system should be built up at national and state levels to resolve these problems so that planning efforts could be supported adequately.

What essentially was conceived as purely a statistical system in early 1970s, evolved into a Data Bank and later as Urban and Regional Information Systems (URIS). In the Annual Conference of Chief Town Planners of States/Union Territories of 1976, the need for establishing URIS found formal expression and approval. I have attempted in this paper to briefly review activities carried out by various institutions for promoting, designing and developing URIS in India.

Town and Country Planning Organisation, Government of India (TCPO) pioneered the URIS movement in the country. Right from 1976, TCPO has been consistently active in various aspects of development of URIS. Initially the organisation prepared a document, listing the data formats for aiding urban and regional planning; and this was based on a detailed analysis of plan reports then available. The spatial framework adopted for urban data was city/town/ward; and for regional data the spatial definition was district. In August 1979, the TCPO

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organised a National Seminar of Experts to discuss the conceptual and developmental issues related to URIS. The Seminar recommended that:

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the Ministry of Works and Housing (now the Ministry of Urban Development), Government of India in association with state governments may take action to establish URIS in Central Town and Country Planning Organisation in collaboration with state Town Planning Departments and other agencies;

☐ a Steering Group may be set up to :

- identify data needs for spatial structuring to achieve incremental social and economic satisfaction to the people
- propose a data processing form to make them useful information for the purpose of urban and regional planning
- suggest guidelines for establishing coordination of data which are being collected by data agencies in the country
- design an organisational structure to fill the information gaps,
- identify the training needs of the people involved in developing a system, and
- make suggestion for undertaking case studies and monitoring studies;

☐ an Apex Body may be set up to coordinate and oversee the development of URIS on a long term basis.

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TCPO constituted a Steering Group as per the 1979 Seminar recommendation and then delineated terms of reference. The Group released two reports—one on Urban Information Systems (URBIS) in 1981 and another on Regional Information Systems (RIS) in 1983. These reports dealt with the data needs, the minimum critical for initialising the systems. The Group also recommended that some pilot studies should be taken up so that proto-type systems designing can be attempted. Two other working groups nominated by the Steering Group have submitted their reports touching upon the data processing forms and coordinational guidelines (terms of reference 2 and 3).

To promote URIS, the TCPO sponsored a number of workshops and training programmes. In February, 1980, a regional workshop on Urban Information Systems was organised at Madras in collaboration with the Directorate of Town and Country Planning (Tamil Nadu), Madras Metropolitan Development Authority, School of Architecture and Planning (Madras), etc. Some of the recommendations made in this workshop were:

1. The objective of URBIS is to make available information relevant

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to urban planning at appropriate levels and scales to planning and implementing agencies;

2. The workshop identified the primary users in the planning organisations and implementing agencies, but recommended that information could be made accessible to various government organisations and academic and research institutions concerned with urban problems;
3. The workshop recommends that URBIS should be a functionally autonomous unit of the state Town and Country Planning Board or a similar high level authority;
4. The workshop recommended that URBIS should have adequate legal authority to procure data;
5. While URBIS will no doubt use existing data, it may also arrange to collect data required to make it more complete and make it useable. The workshop felt that the existing data requires standardisation for making it compatible and universally comprehensible and recommended that detailed studies should be initiated immediately to achieve this. In particular, it emphasised that there is great need for a basic spatial unit for reporting information;
6. The workshop considered that systematic mapping of urban areas is an essential prerequisite for proper functioning of URBIS and should be taken up immediately;
7. The workshop noted that the information needs being in a constant state of flux, URBIS should adapt and cater to the needs by taking recourse to Electronic Data Processing (EDP) facilities at an early date. There is no getting away from the fact that ultimately a fully dedicated computer facility will be required. Till then, URBIS should be set up making use of the existing facilities. In this connection, the facilities available with the Electronics Commission in the state headquarters could be made available to the states for setting up prototype URBIS organisations;
8. The workshop felt that URBIS can be effective only if it has the support and active participation of the top echelons of decision-making at the state and national levels and recommended that the highest decision-making body should be at the core and not the periphery of the information network. URBIS should concentrate on key result areas, initially starting with the top echelons of decision-making using a simplified model;
9. The workshop identified training at different levels as an important component of URBIS and recommended that necessary training facilities be established immediately. A committee may be set up to identify the training needs:

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10. The workshop recommended that information cells be set up and required technical staff be positioned immediately; and
11. The workshop recommended that a pilot project at the state and central levels be started immediately to set up URBIS with the existing facilities so that various issues are clarified to facilitate the establishment of a full-fledged URBIS.

TCPO organised two training programmes on URIS. The first one was in March, 1981, in New Delhi to impart introductory insights on various elements of URIS to planning officials working in central, state and local government departments. This programme was both promotional and experimental in scope. The subjects covered were Systems Analysis, Computer Technology, Remote Sensing, Information Systems, Geo-referencing, Indian Statistical Systems and Sectoral Information Needs (e.g., Housing, Transport, Land use, etc.). The second course was sponsored by TCPO and organised by the Institute for Coastal and Offshore Research, Visakhapatnam, in November, 1981 as a short-term course on Regional Information Systems and Local Data Bank for the benefit of planning officials engaged in the preparation of Western Ghats Regional Plan. The Institute for Coastal and Offshore Research also conducted a regional training workshop on Integrated Resource Data Management for Regional Planning in November, 1982. The Indian Institute of Public Administration conducted a training course on Management Information Systems for Urban Planning in August, 1985. Increasingly a number of training institutions are adding information systems as one of the training components in their curricula of planning courses.

Recently, TCPO convened a national workshop on 'Land Information Systems, Physical Inputs to Planning' in October, 1985 in New Delhi, in which the relevance of remote sensing technology in terms of its application for physical planning was discussed. Information systems and remote sensing scientists from India and abroad presented case studies to urban planners of India to bridge communication gap between the technologists and planner and to evaluate the applicability of current knowledge in remote sensing in planning process.

I have earlier mentioned about the Steering Group set up by TCPO. This Group identified two sets of data needs, one for urban and second for regional, as minimum data requirements to initiate the URIS. The main categories of data identified by this Group are indicated below:

URBIS

1. Geo-physical
2. Area
3. Population composition

RIS

1. General and Physical
2. Settlement status
3. Demography

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URBIS

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| 4. Crime statistics | 4. Land utilisation |
| 5. Employment status and structure | 5. Agriculture |
| 6. Household income and assets | 6. Irrigation |
| 7. Public investments | 7. Forest |
| 8. Banking | 8. Livestock and Poultry |
| 9. Industrial estates | 9. Minerals |
| 10. Institutional arrangements for development | 10. Pisciculture |
| 11. Municipal finance | 11. Industries |
| 12. Land use and pattern of land development | 12. Transportation |
| 13. Housing stock and facilities | 13. Communication |
| 14. Water Supply | 14. Water supply |
| 15. Sewerage | 15. Drainage and sewerage |
| 16. Electricity supply | 16. Power |
| 17. Transportation | 17. Housing |
| 18. Communication | 18. Education |
| 19. Medical and health | 19. Health |
| 20. Education | 20. Finance |
| 21. Recreational and cultural | 21. Tourism |

A number of sub-variables were also identified by the Group-about 250 sub-variables for URBIS and 340 for RIS. They also recognised the need to achieve some correspondence between the functional and administrative boundaries for the system. For URBIS, they recommended that the data should be collected at three levels :

Planning function	Planning area/Urban agglomeration
Local body function	Municipal area
Neighbourhood function	Census ward

For RIS, they categorised the geographic referencing systems into two types, viz., location specific and area specific; and identified data needs in terms of planning at regional, sub-regional, taluka and settlement levels.

TCPO sponsored pilot studies on Urban Information Systems for two medium-size towns, viz., Chengalpattu (Tamil Nadu) and Anand (Gujarat). A system approach was adopted for undertaking the study. The steps identified were :

- Identification of data source agencies;
- Format analysis;
- Data attribute analysis;
- Format design, data collection and encoding;

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The studies are being carried out by the Directorate of Town and Country Planning (DTCP), Tamil Nadu and Town Planning and Valuation Department (TPVD), Gujarat. The first three stages of the study have been completed and three reports, *viz.*, Agency Analysis, Systems Requirements and Attribute Analysis and Format Design have been published by the respective state Town Planning Departments. A mid-term appraisal of the study was done through a workshop organised by the Institute for Coastal and Offshore Research in Visakhapatnam in May, 1983. The last stages of the study are expected to be completed shortly.

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The Department of Science and Technology funded a major study on Natural Resource Data Management Systems (NRDMS) and this was carried out through a number of reputed national institutions. The efforts put in by these institutions during the last three years culminated in developing a methodology for operationalising NRDMS. This methodology was discussed in a demonstration workshop organised in Delhi in October, 1985. NRDMS is expected to be widely applied in the years to come particularly to support decentralised planning process at regional and settlement levels.

There have been some international participation for promoting URIS in India. In early 1977, the United Nations responded to a request from the Government of India and deputed Dr. J.C. Coiner to carry out a feasibility study on the development of URIS in India. His observations on the state-of-art of information systems for supporting planning are given below :

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The standard of socio-economic-demographic data series collected at the local (village) level and provided in aggregated format at state and national levels are of sufficient scope and reliability to use in forming a data base for national and regional information systems;

The data now flows upward from the village to the centre in various aggregated formats. The information system's approach would require disaggregation but could utilize the same vertical lines of communication now being followed by aggregated socio-economic-demographic data;

The spatial bases for the data base exist in the form of Survey of India maps and aerial photographs. However, access is presently restricted;

Flows and quality of data seem to differ widely from urban to rural contexts. Rural data at the village level seem to be of the

best quality and coverage in terms of data elements is more extensive. Data on towns and urban places is a great deal more variable and may be of considerably lower quality, when available; Timeliness of existing data is fair to poor. For routine sources directly accessible at the centre, generally greater than twelve months elapsed from collection to use. For rural data, this time lag decreased at state and district levels but remained relatively high for municipal corporations which seemed generally slow in reporting;

Physical planners throughout all levels of government are familiar with these data sources now so that a change to the information system would be a format change only; Spatial data are not widely used at present, and the physical inputs they represent are not integrated with socio-economic-demographic data;

A single information system would not effectively meet the planning needs of the country.

Some of the recommendations made by Coiner were :

Creation of geographic base files to support planning activities;

Identification of a lead organisation and creation of an information cell;

Training personnel working in this information cell on geographic base file techniques and systems designing;

Initial implementation in selected cities for gaining experience and subsequent applications at state and central levels.

In April, 1985, Cartwright, Special Advisor, UNCHS visited India to review the URIS activities. This visit was also a UNDP sponsored mission. The consultant's report is now under consideration of the Government of India.

The United Nations Centre for Human Settlement (UNCHS) organised a training workshop on Data Management for Human Settlements in Madras in June 1981. This was an international regional programme intended to train urban planners from South East Asian countries in using an Urban Data Management Software (UDMS) in a micro computer environment. UNESCO (Paris) and IDRC (Canada) supported yet another international regional seminar on Information Systems for Sub-national Development Planning in Visakhapatnam in December 1985. This seminar dealt with two aspects, viz., Information Needs and Information Systems and this was discussed with reference to three levels of planning, viz., Regional, Urban and Local. The seminar concluded with a 'Visakhapatnam Declaration' and a 'Plan of Action', indicating possible courses of strategies and action programmes which

the participants may adopt. One of the major achievements of this workshop was the exchange of ideas between developed and developing countries' participants on spatial information systems and variety of its applications. Immediately following this seminar, the Institute for Coastal and Offshore Research, Visakhapatnam organised a national workshop on Information Systems for Decentralised Planning to review the international seminar's recommendations in the national perspective.

The Government of United Kingdom has been sponsoring study tours for Indian planners to enable them to study the applications of information systems in planning and development departments. The first team visited UK in July, 1980 and identified four areas of concerns for URIS, viz., Planning, Implementation, Monitoring and Academic/Research, and three modes of information, viz., Statistical, Geographic and Documentation. While suggesting a systems approach for the design and development of URIS, the team made a number of recommendations regarding geo-referencing, basic spatial unit (BSU), map libraries, coordination and organisation, research, training, etc. The second and third teams visited UK in November, 1982 and April, 1984. They also made a number of extremely useful suggestions.

A number of function oriented information systems are being designed by some of the organisations and these systems have achieved certain degree of success from an operational point of view. TCPO is currently developing three such systems, which are under different stages of implementation. They are Urban Research Documentation Information System (URDIS), Monitoring Information System on Integrated Development for Small and Medium Towns Scheme (MONIS) and Organisation and Manpower Information System (OMIS). The primary objective of URDIS is to rationalise funding of urban research projects by the Ministry of Urban Development. It also serves as a referral system to those pursuing urban research in academic and planning departments. Taking 1975 as bench mark period, information about author, study-title, publication status, sponsoring and funding agencies, etc., have been collected from various research institutions and stored in a computer system. Today, the system has about 900 documents categorised under 49 subject areas. This system has been fully implemented and is being periodically updated. MONIS is intended, as the name indicates, for monitoring the IDSMT project and this has been designed in two modules. The first one is the Town Profile, which is in fact a sub-system of the general purpose Urban Information System. The second one is the Scheme Profile containing data on the physical progress and fund utilisation related to project design. Quite a lot of data have been collected for the 230 and odd towns in which the scheme is under implementation. This has been

stored in computer and some processing has also been attempted. This system has been partially implemented. OMIS will be a directory of organisations and personnel engaged in urban and regional planning, development and research. Data collection has been initially restricted to organisational details, such as identification particulars, reference information, level, status, functions, controlling ministry, year and legislation of establishment, etc. In the next phase, bio-data of planners and other scholars will be gathered. This could be a useful data base for man power planning.

The National Institute of Urban Affairs (NIUA) is yet another institution who have data bases on Municipal Finance and Research Documents. The Municipal Information System was developed for the use of the last Finance Commission and has computer-stored data on the income and expenditure of urban local bodies in India. The Research Documentation System has also a large data base which could provide referral service to urban scholars. Both the systems are expected to be updated. Similarly, Bombay Metropolitan Region Development Authority (BMRDA) has also designed a number of data bases. They have an information system on the decisions taken by the various committees of BMRDA, which can be quickly retrieved on the basis of query codes. Also data from population censuses, transport studies, housing statistics, environmental parameters, etc., are under the process of computerisation. This could make management of metropolitan affairs more meaningful and efficient. Delhi Development Authority (DDA) and Madras Metropolitan Development Authority (MMDA) have also programmes for establishing Management Information Systems on subject matters such as land management, material management, housing, human resources, personnel management, financial management, project monitoring, etc.

So far, I have made an overview of the activities carried out by various institutions for the development of information systems related to Urban and Regional Planning in India. I conclude this paper by raising some issues which have important bearing for its further development.

1. The conceptual evolution of URIS has come about through an external process, external to its real application in the urban and regional planning endeavours. This has been its major weakness. There are issues which are difficult to resolve in a purely theoretical and *a priori* framework. We should apply the current knowledge in real time situations, improvise and learn and modify through experience.
2. The strategy for developing URIS as an integrated and comprehensive system at national, regional and local levels has at best

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resulted in designing only some experimental systems so far. This strategy, which was conceived about ten years back, needs to be critically reviewed. We have seen that function oriented information sub-systems have a better success rate from the implementation point of view. The advantages which such systems have are that their objectives are well defined, which make it possible to design a meaningful data processing system and that they are small enough to enable quicker implementation. Recent changes in planning approaches (corporate planning, project planning, etc.) and development in computer technology (micro-computers, user-friendly software) would support this approach. We should therefore encourage development of function oriented information systems (even at the cost of possible incompatibilities) as a short-term strategy and simultaneously attempt to evolve a sound data bank on a long-term basis.

3. Planning process and planning methods are presently disorganised and this should be streamlined, systematised and documented so that information processing software can be developed.
4. Although the overall statistical systems in India have improved considerably in terms of accessibility, reliability, timeliness and dissemination, data availability at disaggregated spatial levels (e.g., intraurban) is not satisfactory. Attempt should be made to standardise geographic referencing systems and introduce location tags in the present data formats.
5. Fast developments are taking place in information technology (computer, remote sensing, communication). Somehow its utilisation in the field of Urban and Regional Planning has remained poor. There exist large areas of communication gaps between technologist and this should be bridged expeditiously.
6. There are a number of geographic referencing systems available, viz., point, grid, segment, etc., which make URIS unique in the field of information systems. However, considerable application research efforts are required to make them meaningful and acceptable to planning communities.
7. Data are scattered over a large number of departments in the country. In order to organise them, suitable organisational structures have to be built up. This is a multi-sectoral, multi-disciplinary and multi-level venture requiring major national initiative and adequate funding support. □

*Some Aspects of Information System for Urban Planning**

V.N. PATKAR AND V.K. PHATAK

THE SUBJECT—information system in metropolitan and regional planning—has been discussed extensively. A review of literature gives ample evidence of various viewpoints about the concepts and implementation issues pertaining to information system in the Indian context (Ref. 4,5,6,10,11). The Town and Country Planning Organisation has substantially contributed to this debate by setting up a task force, organising a few seminars and workshops and taking up a practical study (for Chengalpattu in Tamil Nadu).

However, a critical review of the situation reveals a stark reality that there may be a semblance of a formal information system in operation at the national level but at the metropolitan or regional planning level nothing exists that can even remotely be called information system. The concepts and technology of the information system do exist but system in practice has been eluding us—probably a classic case of an invention in search of necessity.

To present some of the experiences in setting up an information system at the metropolitan level and discuss the possible course of action for the future are the objectives of this paper.

SCOPE FOR INFORMATION SYSTEM

Urban and regional planning is characterised by its complexity, *i.e.*, the number of forces acting on the scene are large and every issue is interdependent on many other factors. According to Weaver (Ref. 16), there are three classes of problems: (i) problems of simplicity, (ii) problems of disorganised complexity, and (iii) problems of organised complexity. Problems of simplicity are those of physical sciences which have been tackled successfully through science and technology. Problems of disorganised complexity are essentially those involving variables

*The views expressed in this paper are those of the authors and should not be attributed to the organisation where they are working.

interacting with one another in a random manner. Such problems are handled by the fairly well developed theory of Statistics. Problems of organised complexity are the ones which are very hard to solve. It is this kind of problems that is at the heart of modern urban planning. These are characterised by multiple variables and all interacting with each other. For example, in a seemingly simple exercise of ranking 12 projects in an order of importance, 473,001,600 orderings are possible.

To cope with such multi-possible situations arising in the urban planning paradigm a few tools like policy structure mapping (Ref. 12,13,14), interpretive structure modelling (Ref. 15), multi-objective programming (Ref. 18) and so on, have been recently developed. Most of these techniques which have been used successfully abroad, however, demand a lot of quantitative information. Therefore, a need for strong data-base and information system is imperative if we want to use the modern techniques of management science.

Though, theoretically, availability of computer is not a pre-requisite for the development of an information system, the advantage of having one is tremendous. With the rapid innovations in computer technology field, most of the metropolitan planning and development authorities are now in a position to acquire a microcomputer of a fairly large capacity, if not already done so. The safe and compact way of storing a large data-base, quick retrieval and updating facilities and ease of operation are the main features of the modern computers which would clearly help in organising an information system suitable for large scale data requirements of our authorities.

A question arises: why, despite realising the importance of the information system, there is none in any of the planning organisations in the country? In our opinion, the present obsession with the preparation of only a 20-year land-use development plan at city and regional level is one of the major causes for neglecting the proper information system. What happens is that once such a long-term land-use plan gets sanctioned, there is no statutory requirement for any authority to take a periodic review and make necessary modifications according to the changed circumstances. Consequently, there is no concern for regular updating of information about planning parameters. Further, no investment plan is prepared with the result that land-use planning proposals are made without taking into account the resource availability. Since no prioritisation of the proposals (Ref. 7, 8) is done, there is no formal way of deciding the proposals to be implemented when the matching funds are not available. No wonder, most of the land-use plans remain only on paper due to the static nature of existing planning practice. This situation has led to a vicious circle, i.e., due to lack of data, plans formulated are unrealistic and the inflexibility of plan in turn inhibits the development of formal information system

which could provide sound data-base for future planning.

In other words, development of information system itself needs to be conceived as a continuous process parallel to the planning process. Conceptually, the various phases of this process can be described as the *requirement, design, production, installation and operation*. There would, however, be obvious feedbacks in each successive stage and the entire process may develop in a cyclical fashion as shown in Fig. 1.

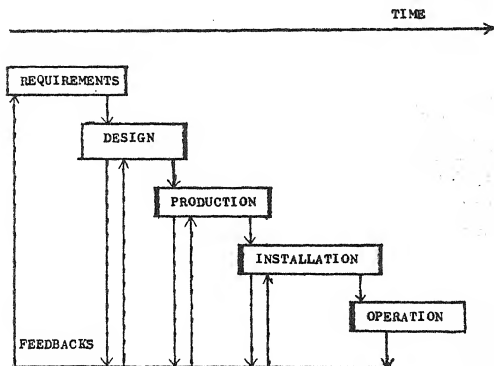


FIG. 1. A Temporal Structure of an Information System

TYPICAL EXPERIENCES.

Having considered the scope of an information system at the city and regional planning level, it would be appropriate to look into some of the practical aspects in our organisational context, viz., Bombay Metropolitan Region Development Authority (BMRDA). The main functions of the authority are policy formulation, project identification, evaluation and execution, investment programming and interagency coordination so as to achieve the balanced development of the Bombay Metropolitan Region (BMR). Naturally, for discharging these functions, quantitative as well as qualitative information about demographic, physical, environmental and socio-economic characteristics of the BMR is necessary on a continuing basis. A few practical experiences in such data collection, processing and usage are given here to illustrate some of the factors underlying the currently observed

unsatisfactory state of information system.

It is obvious that BMRDA has to depend on other organisations to build and update its data-base. For this purpose numerous agencies are to be approached and these are of three types; at local level, agencies like Municipal Corporation of Greater Bombay (MCGB), Thane Municipal Corporation (TMC), Kalyan Municipal Corporation (KMC), etc., at state level, agencies like City and Industrial Development Corporation Ltd. (CIDCO), Maharashtra Housing and Area Development Authority (MHADA), Bureau of Economics and Statistics, etc., and central level agencies like Railways (Western and Central), Bombay Telephones, Registrar General of Census operations and so on.

Housing Sector

Our intention was to obtain data about the annual addition of residential tenements which are being constructed in the BMR in public, private and cooperative sectors. The MCGB could provide the figures for Greater Bombay and CIDCO for New Bombay. The TMC and KMC could provide data only about total buildings constructed in their jurisdiction. Pressed for data on dwelling units, they expressed their inability simply because of non-availability of staff and time for this purpose. The recorded data are about total number of units completed but the sizewise and geographic distribution is not available. This is also indicative of the fact that need to closely monitor shelter sector developments (despite all the discussion and debate on slum problems) does not exist at the level of those agencies which are responsible for policy formulation and controlling development.

Transport Sector

A team consisting of a senior transport economist, a statistician and two data analysts from our organisation, has been entrusted with the collection and compilation of basic statistics pertaining to transport and communications infrastructure and services in the BMR. After a lot of persuasion, correspondence and personal visits, most of the data from Railways, Bombay Port Trust, CIDCO, MCGB, Municipal Councils in BMR, Public Works Department of the State Government, Maharashtra State Road Transport Corporation, International Airport Authority of India and Bombay Telephones are being received regularly now. Based on this data, an annual publication is produced (Ref. 2). The scope of this exercise, however, remains limited because information about many important transport planning parameters is not available, e.g., number of vehicles over the years are recorded but corresponding trip characteristics are not available, the average speeds on the important roads over the last ten years are not available, etc. It is accepted that for such data, periodic surveys are necessary but no

agency is prepared to undertake those with the result, most of the traffic and transport plans are based on one-time survey.

Industrial Sector

The schedules of Annual Survey of Industries give very useful information about many industrial parameters like employment, fixed capital, working capital, value added, etc. Generally it is published at the statewide level. However, after a prolong dialogue, the computer outputs about industries in the BMR are being regularly supplied to us. After taking up the matter with the office of Industries Commissioner in Bombay, a permission was obtained to collect data regarding medium and small scale industries in the BMR. At their end these data are maintained in the manual registers. The quality is poor as records are incomplete and have many gaps which at times are difficult to reconcile. Due to such poor data-base, it is almost impossible to review the changes taking place in the industrial sector. Thus formulation of new industrial locations policy would continue to be on ad hoc basis rather than on the basis of quantified parameters.

Economic Sector

The last economic census was taken in 1980 but no tables are officially available till today. After persistent efforts, a permission was granted to copy down the data from the canvassed schedules stored in the various office premises of the Bureau of Economic and Statistics located in different parts of the BMR. This in effect means, noting down the various items of information for about 3.60 lakh establishments in the BMR. The expenditure for this data collection purpose in terms of man hours is enormous and additional cost will be incurred for processing this data at our end. Decentralisation of economic activities to decongest south Bombay has been the principal theme of all planning in Bombay since 1960's. But ours is perhaps the first attempt to comprehensively analyse the geographic distribution of establishments and employment. Thus it appears that an efficient system to monitor changes in these patterns, though felt very necessary, would not be possible even in near future.

Demographic Sector

The decennial census of population is a principal source of demographic information. Still, 1981 census district handbooks for the major portion of the BMR have not been published. So a recourse was taken to copy down the available broad level compiled data. Thus certain important characteristics, e.g., age distribution of population, migration pattern, etc., are not known. As is well known, the data for 1971 and 1981 in respect of 'other workers' category are not compatible.

Similar problem was faced when we tried to get the population figure for the area of 'Dharavi' which is a part of one of the wards of Bombay. This was due to non-retention of circlewise data as was done in 1971. Obviously, the delay in obtaining this basic disaggregated data at the local level causes a big problem for planning efforts.

Investment Programming Sector

Due to limited resources (expected to be available), it is very crucial for the BMRDA to take an overall view and prepare a five year regional investment plan to use them in an optimal way. The objective of such a plan is to assess the various sectoral and geographical needs of infrastructure developments over the next five years and programme investments taking into account the priorities and various possibilities about the funds. Recently, while undertaking this exercise (Ref. 3), it was found that most of the agencies plan on annual basis and, therefore, it was not possible to learn about their plans for the next five years from any of the published documents. Therefore, the necessary information was collected through special efforts and an investment plan suggesting allocation under different scenarios was prepared. It was sent to all the concerned agencies for comments and with an idea that yearly progress report may be obtained so as to build a system to monitor the developments and initiate the corrective actions. However, on the basis of feedback received so far, it appears that this effort has been relegated to a status of theoretical exercise only.

DISCUSSION

It is clear that urban and regional information system itself cannot be a primary source of data collection and it has to depend on other agencies for the basic data. Its role is to process the data so as to give meaningful interpretations and signals. The sample of experiences given above brings out weaknesses of our data collection and also indicates the action to be taken for removing those. Some of the deficiencies can be listed as given below :

1. Lack of manpower to organise the data.
2. Lack of uniformity in data collection format.
3. Apathy to data reconciliation and bridging the gaps.
4. Non collection of data.
5. Reluctance to part with data.

Of course, all these reasons are well known and for every reason an explanation can be given. The remedy is to continuously pursue the matter with these primary data collection agencies. It is our experience

and conviction that much of the needed data can be obtained if little modifications are carried out in the data gathering process. The user agency may have to bear the extra cost sometimes but it may be worth it. Another dimension of the data gap which is again much discussed but not rectified is the non-availability of maps of appropriate scale and their periodic updating. There is very little advantage in thinking of using the latest tools of aerial photography and remote sensing imagery processing in the current archaic concept of secrecy of maps.

There is a very important aspect of the information system building which has been neglected in our context, *viz.*, cost of an information system. Any organisation attempting to initiate the information system must pay a great deal of attention to this aspect. The cost has the following three components: (i) cost of data collection, (ii) cost of retrieval, and (iii) cost of updating. Clearly the cost will depend on the strategy employed in information system design, the level of disaggregation, the level of spatial coverage, frequency of retrieval and updating. Naturally a question of corresponding benefits arises. The empirical quantification is generally difficult because the benefits are mostly in terms of the improvements in the quality of decision-making related to urban planning issues. A cost-effectiveness analysis is, therefore, recommended (Ref. 9) where basically the costs of alternative ways of implementing information systems would be compared assuming the benefits to be the same.

The absence of a discussion on cost aspects of an urban information system is a reflection on the working of our urban systems management which is generally under a direct or indirect control of government. Perhaps not much attention is given in the present set-up to evaluate the cost being paid to acquire an information on the *ad hoc* basis *vis-a-vis* that would be involved in setting up a regular information system. It may, however, be clarified that some *ad hoc* information will always be needed to be collected because an information system designed to meet all possible questions is simply not possible. Nevertheless, such occasions can be minimized through systematic efforts.

The end-use of the information system is also worth considering. It is a hypothesis that a fine-tuned information system can improve the decision-making. Despite a few observed instances contradicting this hypothesis, we believe that more reliance on quantified parameters to support perceptive, intuitive and qualitative approaches will be witnessed in future decisions. Sheer magnitude and complexity of issues will demand such an aid (Ref. 17).

Presently, a wide gap exists between the state of information systems at the national level and metropolitan and regional level. Due to obvious compulsions, the resources in terms of manpower and computer facilities available at the top level are enormous in comparison to

those at the lower levels. It is apparent from the plans afoot (Ref. 1) that with the additional facility of computer-networking, the scope of information systems at the national level is bound to increase tremendously. However, such grandiose plans will not succeed without efficient flow of data from the local levels. This cannot happen for the sake of data gathering alone. The need for continuously updating data must be felt at local planning and decision-making levels. Excessive concern for the conformity of the formats across the country is therefore not desirable at this initial stage. What is needed is to motivate the local organisations and, if necessary, provide the funds and other support to develop their information systems.

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Information Needs for Urban Planning and Development: The Users' Perspective

M. N. BUCH

ALL PLANNING involves two parties, those who plan and those for whom plans are prepared. In the context of urban planning plans have to be prepared for the people who live in a city, and not merely for land, which is but a medium. It follows, therefore, that both the interested parties have to be equal participants in the process of planning. The manner in which planning is done in India creates an impression that, far from participating in the process, the people for whom plans are prepared are in fact the victims of planning, the guinea pigs on whom planners try experiments. There are many reasons why even well prepared and funded plans fail, but a major causative factor is the complete dissociation of people from the process of planning.

It will be useful to recount the manner in which plans are prepared. Government notifies an area which is to come under planning. Thereafter the competent authority as often as not in total isolation, carries out surveys, applies the perceptions of its officials to the problems and then prepares a draft plan. Institutional users such as departments of government, municipal bodies, public corporations, sectional interests such as the chamber of commerce, etc., are consulted in a perfunctory manner whilst the draft is being prepared. The law demands that the plan must be published in draft form in order to invite objections and suggestions. Because the process of planning is bureaucratic and secretive, the average citizen remains both unaware of the plan's contents and disinterested in its recommendations. The very interest groups which are consulted by the competent authority are often the only ones which give suggestions and objections. If one is to take the example of the Delhi Master Plan, it would seem that the draft plan does not generate any meaningful public debate in which the average citizen participates.

There is a further legal provision for the hearing of objections and suggestions, both by the competent authority and by government,

which has ultimately to sanction the plan. By and large there is reluctance on the part of the authorities to accept any suggestions or objections because that would require alterations in the plan itself. Therefore, there is proforma hearing or, worse still, a consideration of suggestions and objections on files only, with a general attitude of rejection.

As things have developed, the average city plan is heavily oriented towards land use planning, control and zoning. Such infrastructural development as is suggested is ancillary to land use and is not designed to act as an instrument for channelising or directing city growth. So far as the citizen is concerned, he really gets an awareness of the plan only at the stage of implementation. The generic term 'development' is used to describe plan implementation, despite the fact that what may result is not so much development as ruination. The pinch comes when land begins to be acquired, people are displaced, building permissions brought within the mould of the plan, land owners deprived of the economic use of their holdings and the competent authority begins to cast a shadow on the normal life of the citizens. Quite often it is too late by then for them to be able to effectively regain control over their city and their lives.

In the same manner as most plans are prepared in great secrecy, specific development plans are also highly bureaucratised and hidden from public scrutiny. Quite often they are also kept hidden from other organisations which are required to put in coordinated effort for the success of the plan. One single example will illustrate the point. The Delhi Development Authority (DDA), in 1966-67, developed and made available 30,000 plots to cooperative societies for individual plot development. The plans of DDA were not interlocked with the infrastructural development plans of the municipal corporation, electricity undertaking, transport corporation, etc. Thirty thousand families, having limited income, put their savings into purchase of these plots from DDA. For 12 long years the money lay locked because services were not extended and building permissions denied for their lack. The 12 years which passed without solution of the problem witnessed the simultaneous growth of an alternative, spontaneous development in the form of unauthorised colonies, where people took the law into their own hands and constructed shelter without any permission. The total lack of coordination between the authorities created a massive problem for the citizens of Delhi in that they were denied 30,000 new houses properly constructed and, simultaneously, were deprived of the planned development of the land which came under unauthorised colonies. The failure of the authorities to exchange information between themselves has resulted in a double jeopardy for the citizens of Delhi.

Participation demands completely free exchange of information,

ideas, preferences and choices. So far as the user of a city plan, the citizen, is concerned, he has to be informed from the very beginning of the planning process which has been set in motion. As soon as a survey is completed the competent authority must inform people of the findings of the survey and the problems highlighted by it. This can be done through exhibitions at local level, seminars and workshops, wide distribution of monographs, and talks and discussions at community level. The process is arduous but it brings the citizen into the picture at the initial stage itself. The value of the exposure of the findings of survey to the citizen is that distortions would be pointed out at the level of the community and the perception of the people regarding their own problems would be reflected in their reactions to the findings.

The importance of such interaction can never be over-emphasised. To give an example, it was a common feeling of planners that the main problem of construction workers is a lack of proper housing. As a result of a detailed survey of women construction workers carried out by the National Institute of Urban Affairs in 1981-82 in Delhi, a totally new conceptual frame was evolved because in the eyes of the users, the workers, housing did not represent a problem at all. The aspirations of the workers in descending order of priority were the extension of educational facilities for children so that they could better themselves, a desire for acquiring new skills so that there is upward mobility, proper enforcement of rules and regulations relating to wages, supply of rations, medical facilities, water supply and, lastly, housing. Because there was interaction between the surveyors and the persons surveyed it was possible to suggest a policy frame for construction workers totally different from that which have been conceived all along by planners.

Once the problems have been highlighted and discussed it would be useful if the competent authority has a series of discussions, right down to community level, on priorities. Ultimately any plan has to be designed to solve problems in a given order of priority. The sheer scarcity of resources demands this. It is only after the priorities have been defined that it is possible to prepare a plan which suggests solutions. The plan components, disaggregated sectorally, must be thrashed out with various users, interest groups and experts in specific disciplines. Once again the broadest possible spectrum of opinion should be brought to bear on the preparation of the draft plan.

Once the draft plan is ready it is published in the gazette and the authorities sit back and await objections. The draft must be exposed to much wider public scrutiny by holding a series of exhibitions, etc., at community level. The process is somewhat more time-consuming than the present practice of inviting objections within 30 days by

notification, but there is no escape from it if citizen awareness is to be created. The experience at Bhopal, Indore, Raipur and Jabalpur in Madhya Pradesh was that as soon as citizens are exposed to the details of a plan, lively debate is generated. In all these cities local newspapers published special supplements at their own cost, with *Nai Duniya* of Indore leading with a chapter by chapter critique carried in 14 two-page supplements. Citizens' forums were also formed, which took great interest in the plan proposals. It is when such interest is generated that suggestions and objections pour in even from very ordinary people.

The public hearing of objections and suggestions has to be really public. At Indore the hearings lasted over ten days. There has to be a willingness on the part of the authorities to accept valid suggestions and objections and a readiness to alter the plan if it is contrary to the pronounced preferences and choices of the citizens. A community has the right to decide what is best suited to it, even if this runs counter to the neat land use plan that is the overriding weakness of planners. My own experience has been that in the older part of our cities there is a definite preference for a life style based on neighbourliness, cheek-by-jowl living and narrow streets which are an extension of the house itself. An attempt to depersonalise the streets and make them merely anonymous carriers of traffic is strongly resented by the community. There is no reason why the planner should not be prepared to accept the user preferences and leave the life style of such communities alone. Planning demands an improvement of services in such areas, not a widening of streets or demolition of buildings in order to provide a set back. The Turkman Gate scheme of DDA failed because it ran counter to community preference. Fortunately the Chawri Bazar scheme was given up—its implementation would have led to an even greater bloodshed than that at Turkman Gate.

Urban development goes well beyond just the preparation of a master plan. Basically there are three components of urban development and management. They are:

- (a) preparation of the overall plan and specific projects under it,
- (b) the provision and management of services, and
- (c) regulation and control.

We have already dealt with the first aspect earlier in this paper. When it comes to the provision of services and their proper maintenance, which is basically a municipal function, the lack of communication between the people and the authorities is at least as pronounced as in the case of plan preparation. Take water supply, for example. All municipalities broadcast overall figures of supply in terms of

average litres per capita. Not a single municipality ever informs people about the differential of supply between localities and income groups. There are, within the same city, areas where people receive barely 5 litres per head per day, whilst others enjoy well over 500 litres per head per day. Such inequitable supply amounts to unacceptable discrimination. If people only had information this could lead to both agitation and litigation. What is true of water supply is also true of all other municipal services, be they paved streets, street lights, sanitation and conservancy, recreation areas, etc. The user, the citizen, is entitled to know how his municipality is servicing him so that he can insist on his right to equal access to services. What is more, he must have information about access to land because it is here that there is maximum discrimination. Nothing illustrates the point better than the situation in Delhi. This is the city which, when the first Master Plan was formulated, laid down that, "All these lands will remain under public ownership and developed plots or undeveloped plots will be leased out to individuals and cooperative societies on an equitable basis. The ownership of land by government makes planning and the implementation of plans easier and is imperative if slum clearance, redevelopment and subsidised housing and provision of community facilities . . . have to be undertaken . . ." (Master Plan for Delhi, p. 7). Instead what has resulted at the end of 25 years of planning is that 45 per cent of the population of Delhi lives in squatter colonies, with the possibility that this percentage will rise to 80 by the year 2001 (Draft Master Plan for Delhi 2001). Correctly interpreted this means that the land policies followed by government in Delhi have resulted in denial of legal access to land to almost half the population. Obviously the implementation of the prescribed policy has been so faulty that a huge mass of people has been forced to have recourse to illegal means of housing. How many people know this? How many people were told this in the last 25 years? What opportunities were given to the citizens of Delhi to protest against such defective policies and the even more defective implementation so that suitable corrective measures could be taken? The mess in Delhi is directly attributable to the isolation in which the Delhi Development Authority functions and the distance at which it keeps the citizens.

It is in the regulatory aspect of urban management that there is maximum contact between the citizens and the authorities. Taxes have to be assessed and paid, permissions obtained from time to time and various inspectors satisfied that the citizen is living his daily life strictly according to law. There are no manuals or guides, couched in layman's language, which could inform the citizen of his rights vis-a-vis the municipality, or the manner in which various regulations would apply to him. Take the very simple case of obtaining building permission.

The rules lay down the form in which an application is to be submitted. There is a time limit of between 30 and 60 days, prescribed by municipal acts, within which the municipality must either give the permission or reject it. On expiry of the period of limitation the permission is deemed to have been granted. Despite this the applicant is forced to go from authority to authority, including the nazul administration, the development authority, the municipality, etc. There is delay and corruption at each level. The right of the citizen to obtain permission is infringed by individual officials on specious grounds. A municipality desirous of serving the people would make available information, in language easily understood, so that the citizen can avoid both delay and harassment. Perhaps there is a vested interest in withholding information.

Ultimately all urban development is a matter of sharing. It is the citizen who shares in the cost of development and it is he who shares in the benefits accruing therefrom. A wise development agency would do well to share all available information about a scheme with the citizens so that they accept it as their own and willingly agree to contribute their mite. When I was Vice-Chairman of DDA it was decided that unauthorised colonies would not be regularised unless they paid development charges. There was strong resistance to this decision, largely because the citizens felt that the money so realised would be wasted and not used for the development of their colonies. We took up Sant Nagar as a test case. A series of discussions led to the citizens of Sant Nagar agreeing to pay rupees half a million towards water supply, with a guarantee from us that the work would be completed within two months. We did our part of the job in six weeks and the message flashed home all over the city. At least in the over 200 unauthorised colonies under DDA's charge I had no difficulty in collecting development charges thereafter. The average citizen is very responsive to positive action and, provided he is taken into confidence, will always cooperate with the authorities. This is a lesson which every manager of city development must learn.

Almost every large city faces the problem of lack of coordination between various authorities at operational level. Certainly there is a great deal of departmental rivalry which contributes to this state of affairs. Equally important, however, is the general lack of information about programmes, with the result that individual agencies go their own way, often in direct conflict with what other agencies are doing. Our major weakness in India is that coordination has become co-terminus with coercive compulsion by a superior authority. If all development and management agencies agree that their basic role is to contribute towards city development, then they would all have a common goal and the need for coercive coordination should not arise.

Provided that all the partners in development are aware of what has been planned for implementation, there is no reason why they should not be able to coordinate operational plans. It is here that we have one of the major failures in the field of urban development.

The citizen is not interested in the form of the agency which will cater to his development needs. His only interest is in the proper functioning of the various agencies so that the city may be managed well. It is the duty of all urban management authorities not only to inform each other of what they are doing but also to take the citizen into confidence at every step. Once information is freely exchanged there would be a miraculous improvement in city management. ☐

An Information System for Housing

VINAY D. LALL

SEVENTH PLAN PERSPECTIVE

THE SEVENTH Plan has, for the first time in Indian Planning, stated very clearly the crucial role of housing in national development. It has ranked housing "next only to food and clothing in importance" and has stated furthermore that "housing activity serves to fulfil many of the fundamental objectives of the plan providing shelter, raising the quality of life particularly of the poorer sections of population creating conditions which are conducive to the achievement of crucial objectives in terms of health, sanitation and education; creating substantial additional employment and dispersed economic activity; improving urban-rural and inter personal equity through the narrowing down of difference in standards of living and last but not least, generating additional voluntary savings" (p. 292).

The Seventh Plan programme is ambitious: to create/facilitate the creation of 40.9 million housing units during the Plan period to take into account the shortage of 24.7 million units estimated by the National Buildings Organisation (NBO) as the shortage at the beginning of the Plan and the estimated need of 16.2 million units for the incremental population during the Plan period.

WEAK DATA BASE

The basic question that arises is : "How are we going to meet this challenge," assuming, of course, that the estimated demand for housing units is accepted. There are reasons to fear that the projected demand may not be realistic as they have been made on the basis of simplistic assumptions due to the existing poor data base on the housing sector.¹

The investment outlay for the Plan is based on an even weaker data base. As "reliable data on investment in private housing are not

¹Thus, the housing demand is estimated by a simplistic method of dividing the population by the assumed household size on the one hand, and definition of housing unit which require reconsideration, on the other hand.

available", the Planning Commission has assumed "that the share of the public sector undertakings" in CSO estimated gross fixed capital formation was Rs. 70-80 crores and therefore "gross capital formation in housing in the private sector would have been around Rs. 2,980 crore" in 1980-81, the latest year for which CSO data are available. These data were supplemented by CSO data on private sector investment in housing between 1974-75 and 1979-80 to assume a "10 per cent growth rate" for the Sixth Plan period and then further assuming "On this basis, the private sector investment in housing during the Sixth Plan would have amounted to Rs. 18,000 crore. A growth rate in private sector housing in the Seventh Plan equal to that assumed for the Sixth Plan period would imply an investment of around Rs. 29,000 crores" (p. 293).

Thus, the Seventh Plan hope for the flow of financial resources into housing from the private sector is based on such a weak data base that it raises serious doubts on the possibility of the private sector being able to meet its allocated target. In order to facilitate the flow of financial resources into the housing sector, the Seventh Plan has proposed the creation of a National Housing Bank (NHB) as "the biggest weakness of the housing sector is the non-availability of long-term finance to individual house builders on any significant scale" (p. 293). The Plan is very clear, and rightly so, that the "mobilisation of resources for the housing sector would have to come in a large measure at the local level from households" and the NHB will have to "act as a conduit for institutional finance". For this purpose, innovative savings instruments will have to be structured. This will depend to a considerable extent, on the availability of wide based data system on incomes, expenditures and savings potential of different types of households in various parts of the country.

Even if the assumed investment outlay may be available for housing in the Seventh Plan, another major issue that is relevant for attaining the Plan target concerns the supply of land and physical inputs to implement the massive target of housing programme. The data base is again very weak, making it difficult to forecast the availability of the inputs for the construction of the housing units. The problems are compounded as a substantial proportion of housing activities takes place in the unorganised or informal sector.

DATA SOURCES

The major sources of data on the housing sector are :

1. CSO National Income data relating to capital formation in housing and construction sectors;

2. Industry data on installed capacity and production of construction materials;
3. NBO publications on housing statistics and allied subjects;
4. Annual Reports of financial institutions like the LIC, GIC, HUDCO, RHI on financial and related issues; and
5. National Cooperative Housing Federation statistics on housing activities in the cooperative sector.

The main inadequacies of the available data are :

1. The presentation is, in many cases, at a level of aggregation that reduces the utility. It is desirable to further disaggregate the data;
2. The time lag in the availability of data is often too long, generally 2 to 3 years, and sometimes 5 to 6 years;
3. The quality of the data is too poor to be of any use. Land price is one major area, which is critical to the successful implementation of any housing programme and the data base is not only most limited, but the method of collection is also *ad hoc* in nature; and
4. Some important sectors do not have any data base. Thus, for example, data are non-existent on the unauthorised sector housing and grossly inadequate on slum and squatter settlement, informal housing finance market and innovative savings schemes and construction methods.

PROPOSED STRATEGY

A comprehensive data base on all aspects of housing sector activities has to be built up on a priority basis. The strategy envisages sectoral specialisation on different aspects and the work may be coordinated by a centralised agency. It is proposed that the National Housing Bank, which is in the offing, be given this responsibility. In fact, the Seventh Plan Working Group on Housing had recommended that one of the functions of the NHB should be "to develop management information, monitoring and evaluatory system, data bank, etc.", on the housing sector (*Report*, p. 69).² In the development of the information, the NHB should use the available infrastructure of institutions like the NBC, CSO and state level Bureaus of Economics and Statistics, apart from developing a strategy to obtain

²For details, see the Report of the Working Group (1984) and Lall, Vinay D. *Housing Finance in India*. Report prepared for the Ministry of Works and Housing, Government of India, 1984, pp. 143-48.

primary data directly from the concerned constituents of the housing sector.

The major aspects of housing on which the information base should be developed may include the following :

Land

- (a) Stock of available land, raw and developed, that is available, for different land use in all towns and semi-urban and rural areas,
- (b) Land prices of raw and developed land, with disaggregation by level of development,
- (c) Land prices for 'b' categories of land by land use and in different locations (for example, central business district, residential complexes, peripheral areas, etc.) in metropolises large, medium and small towns, and
- (d) Data on possible factors that may have a bearing, *a priori* and also based on past experience. on land prices.

Housing Stock

The Census data should be updated quinquennially and be supplemented by the following data on a regular basis :

- (a) Value of the housing stock of different categories in formal and informal housing sectors in different size towns all over the country,
- (b) Disaggregation of housing cost for major components at the maximum disaggregated level,
- (c) Data on phased housing programmes,
- (d) Data on available infrastructure facilities and amenities provided by government, local bodies and private sector,
- (e) Construction agencies, role of voluntary agencies, public and private sectors and cooperative sector,
- (f) Construction period of different categories of houses at the maximum disaggregated level, and
- (g) Cost overruns in housing programmes of different categories of stock and on possible factors that led to overruns.

Building Materials

- (a) Data on installed capacity, production and consumption of all inputs in different parts of the country,
- (b) Data on inputs supplied by the informal or non-organised sector, and
- (c) Data on locally used materials and potential usable materials relating to quantity and value.

Finance

- (a) Institutionwise data on amount of loans, types of loans, purpose of loan, type of housing stock financed, regional and town size distribution of loans, etc.,
- (b) Major conditions for the loans for different loan size, and categories of beneficiaries,
- (c) Resource mobilisation policy and programmes of the housing finance institutions and major terms on which resources are mobilised,
- (d) Innovative savings instruments developed and marketed by the institutions and distribution of mobilised resources under different types of households (for example, income groups, different size towns, different regions, etc),
- (e) Default data and causes thereof for as many disaggregated groups as possible,
- (f) Effect of the financial assistance in terms of housing stock, capital formation, savings mobilisation from the beneficiaries, etc.,
- (g) Role of the informal housing finance market, and
- (h) Financing of house construction activity of private builders.

Household Sector

- (a) Socio-economic data of households in different size towns in various parts of the country. The data may cover the size of the household, its composition by age, sex, earning members, occupations, income, etc.,
- (b) Trends in monthly/annual incomes of households and individual engaged in formal and informal sector activities in different size towns all over the country,
- (c) Level and pattern of monthly household expenditures, both of a regular recurring type and of periodic lumpsum type,
- (d) Assets holdings, both of conventional and non-conventional types,
- (e) Level and composition of savings, and
- (f) Estimation of savings rate and potential.

Household Plans for Housing

- (a) Housing Plans covering aspects like size, type, location of future home, investment outlay, and proposed method of resource mobilisation, time schedule for house acquisition, and
- (b) Savings plans for a future home.

The foregoing analysis is suggestive of the type of data that require to be built in the housing sector. The proposed data base will serve

many purposes, the ultimate aim of which is to strengthen the base for undertaking activities in the housing sector and multiplying the housing stock so that an affordable shelter is easily accessible to all the people in the country. The data base will be useful, *inter alia*:

1. To estimate the housing status in terms of existing housing stock, housing shortage and projected housing demand,
2. To plan housing activity to meet the estimated housing shortage by appropriate planning for the supply of requisite materials, technology, finances, etc.,
3. To monitor and evaluate the progress and effects of housing programmes,
4. To assess the viability of future housing programmes, and
5. To undertake activities that will contribute to the success of the housing programmes. ☐

*Introducing MIS In An Urban Planning Authority : Three Approaches**

REALISING THE urgent need for setting up of formal information systems in the organisations dealing with urban planning like development authorities, town planning departments and municipal corporations, the IIPA conducted the "First Course on Management Information Systems in Urban Planning" (August 12-21, 1985) at New Delhi. The broad objective set for the course was to acquaint the participants with the concepts and components of information systems in general and guide them in designing appropriate systems for various aspects of the urban planning.

There were 19 participants drawn from different parts of India representing a cross section of organisations in terms of size and responsibilities. Generally, the lecture method with presentation of a few case studies was adopted by the speakers. In the midst of the course it was thought useful that by the end of the programme, the participants should prepare a brief paper to answer the question: How would you introduce MIS in your organisation? The participants were divided into three groups for this purpose. They took different approaches and at the concluding session of the course, the designated leaders presented the respective group-thinking.

To present a summary of the viewpoints of these three groups to focus on the possible approaches for introducing MIS in a real life situation is the aim of this paper. It may be clarified that the discussion here is neither an evaluation of the course nor of the contents presented by the groups (Appendix contains the group details).

GROUP I : SYSTEMS APPROACH

This group considered the Delhi Development Authority as their organisation for the introduction of MIS. The objectives of the authority are to promote and secure the development of Delhi according to the plan and thus undertake the operations like acquiring, holding,

*Prepared by the Syndicate Groups of the first course on "Management Information Systems in Urban Planning" at the IIPA. The reports have been given the shape of paper by V.N. Patkar.

managing and disposing of land and other properties, constructing houses and providing the requisite amenities and facilities for the citizens.

Next the organisational structure is considered. At the top policy-making or strategic level, the authority consists of a chairman, vice chairman and the elected/nominated representatives from the central government and other local bodies. There is an advisory council to guide the preparation of the Master Plan or other matters relating to planning and development. The top level is supported by the major departments (Sub-Systems) which constitute the tactical level of the management. Their major functions and information needs are given below:

Planning:

It is entrusted with preparation of the Master Plan and zonal development plans and to get those approved from the central government. All the demographic and socio-economic data relevant for land-use planning constitute its information base.

Land Management

To acquire and dispose of the developed land and buildings are its main functions. The records pertaining to land holding matters and revenue collection are its crucial data-base.

Finance, Accounts and Audit

To keep track of all the money received by way of grants, sale of plots and buildings, etc., on one hand, while recording all the project and non-project expenditure on, the other, and to prepare a budget of the authority are the duties.

Engineering

To execute the sanctioned projects according to the schedule is the main function. The details of the physical progress and itemwise expenditure incurred for each project serve as its data-base.

Personnel

To look after the manpower requirement, deployment and training are its functions and the personnel records constitute its base for decision-making.

Legal

This department safeguards the legal interests of the authority. The case histories and other legal records serve as a source of information.

All the above departments have a reasonable number of staff to

carry respective works at the operational level.

Over the years each of the above sub-systems has developed some database suiting to its requirement but there is no centralised information system which can interact with all these separate systems. The manually prepared file by each department is generally the mode of maintaining data and the inter departmental transfer of files is slow and at times resisted. This results in lot of duplication as each department tries to maintain its own records on most of the parameters. Similar problems are faced by the authority while dealing with other city and central level organisations. The group thus listed the following problems with the existing information system situation:

- (i) The information that flows out of each such sub-system does not have a common base over time and space.
- (ii) The retrieval of information is time-consuming and tedious.
- (iii) There is no centralised system which can guide the information seeker to the appropriate source.
- (iv) The data requirements of the top level management and those available with the departments often do not match as no systematic effort has been made to design a system which would be useful to both.

To devise an appropriate information system, the group suggested a strategy that each department develops a well designed system for its own purpose but which is guided by an overall information system framework which avoids duplication and further prescribes a uniform format to the extent possible. The phasewise development is envisaged. First, a manually prepared systematic data-base which would serve the maximum number of users should be initiated. Next, a cardex system be introduced and finally when sufficient experience is gained and resources are available, computer-based system may be introduced.

GROUP II : INCREMENTAL APPROACH

The organisation considered for the introduction of MIS is a Regional Development Authority having some of the principal functions as : (i) policy fomulation, (ii) project identification, evaluation, execution and monitoring, (iii) investment programming, and (iv) inter-agency coordination.

The Chief Executive (CE) is to discharge functions through the heads of the various technical divisions and to report the progress to some superior committees which are mostly consisting of elected/nominated members. It is assumed that some crude form of MIS is existing in the organisation to support the CE and other functional heads.

It was envisaged that a senior officer, say, either in the planning and coordination division or in the secretariat of the CE who finds it quite difficult to supply the information requisite for the decision-making and monitoring the activities due to existing ad hoc and not properly designed reporting systems, thinks of a change. He is thus motivated to systematise the data collection and processing to facilitate his work of coping with the various information demands. The exposure to a MIS course may also reinforce his motivation to develop more formal and organised systems (Of course, sometimes, the CE may himself ask for such a development on his own or an external consultant may suggest so).

The first and foremost task for the designated officer would be to convince the CE about the advantages of the new system and, the best manner to do so is to develop a small limited purpose system in say, two to three months, time and demonstrate its usefulness. For this purpose he may ideally pick up an area which he judges to be crucial for CE. For example, one such area is Decision Documentation, *i.e.*, to organise a system to retrieve very efficiently the decisions taken in say, last five years, either yearwise or meetingwise or projectwise and so on. Once the CE is convinced of the utility, a big hurdle is over. In the same manner, one or two systems for the functional divisions can generate the sufficient interest at all levels. It was clarified that the availability of the computer facility is not a precondition but the advantage of having it would enhance the claim further.

Once it is agreed that a formal MIS be attempted to cover all the functions of the authority, a small team comprising of a senior level planner, system analyst and statistician be formed. This team will have to identify and list all the appropriate areas and then decide the priorities (consulting all those involved) to start building the information systems. A good strategy would be to take up at least one aspect of each division so that none feels neglected. Further, a resource person in each division may be identified who would liaison with this team. The steps to be taken by this team are:

1. to define the needs of each user and thereby identify the parameters for the data collection;
2. to take inventory of the internal as well as external data sources to identify data gaps and strategies to bridge those;
3. to design suitable, *i.e.*, simple to understand, formats for data collection.
4. to determine the frequency of updating the information and the form of presentation; and
5. to give a trial for six to nine months and analyse the feedback.

This process is expected to take approximately one year to stabilize. The experiences accumulated by then would lead to the following decision: either the system be scrapped (the reasons may be many) or continue as it is or to upgrade it further, possibly by computerising. In the case of last choice, the investment of much more resources in terms of hardware, software and trained manpower is required. However, if the computer facility is available, the cost of MIS computerisation is expected to be marginal.

GROUP III : TELEOLOGICAL APPROACH

This group considered an organisation dealing with a specific aspect of urban planning, *viz.*, Water Supply Project Authority for the introduction of MIS. The group, therefore, had a precise objective of managing the water resources in the best possible manner.

The group identified the following broad parameters for developing an information system :

- (a) Demographic and socio-economic characteristics of the population which are needed for projecting the demand of water for domestic, industrial, fire-fighting and other uses.
- (b) Norms for the usage which depend on the size and composition of the settlement, social attitudes, paying capacity, etc.
- (c) Sources of water, their quality and quantity, geographical and hydrological aspects of the area.
- (d) The pipeline designs, machinery and materials available and their cost structures, etc.
- (e) The supply position of high-cost and crucial items of execution works.
- (f) The legal aspects of riparian rights and other related issues.

It was suggested that an information system covering these parameters be developed for each project. This would help the operational level people as well as facilitate the higher management in proper monitoring through the Operational Research tools like Critical Path Method, Programme Evaluation and Review Technique, inventory management, etc., which demand a properly maintained and updated data-base. Such a system would aid in properly ordering of items and maintaining optimum inventory levels. The periodic reports generated by these systems will provide an upward flow of information about the problems and bottlenecks faced at the operational level while the policy guidelines and tactical measure to be employed will emanate from the top and middle levels.

Once such an internal information system is well established then a

scope for its computerisation and further expansion to cover environmental scanning and technological assessment can be thought of.

DISCUSSION

The organisations considered by the three groups represent a wide variety, viz., a real city development authority, an abstract regional planning and development authority and a public utility organisation, respectively. All the groups have attempted to incorporate the basic steps of designing an information system like examine the organisational structure, identify the needs of the different levels of management, evaluate the alternative ways available for introducing MIS and so on.

However, the suggested approaches differ in some respects. Obviously the difference has arisen on account of different types of the organisation under review. The first group has dwelled more on studying the management structure so as to develop information systems for all the departments more or less simultaneously which would ultimately culminate in a total information system for the organisation. The second group has suggested an incremental approach where one or two crucial areas for the management are taken up first and further areas are to be taken up later as the experience and confidence are gained. The third group has accorded a higher priority for developing information systems to help the operational level of organisation because it is more exposed to the public and expected to produce quick and tangible results.

Taking a view that internal staff members are the best familiar with the operations, strengths and weaknesses of the organisation, the development of information systems be initiated through them (after some training) was the recommendation of the groups I and II. The group II had tried to identify the skills required for this purpose and also put forward an action plan for commencing the process. The group III was of the opinion that the external consultants may be entrusted this task.

None of the groups felt the availability of computer as a prerequisite for the development of information systems. In fact, there was a consensus to adopt a gradual upgradation approach of transition from manual to mechanical and then to computer-based systems. The groups estimated a minimum of one year as the timeframe for any system to stabilize.

Due to paucity of time, the groups could touch upon few aspects only. Of course, they were aware of other related issues such as costs, training, change in work systems and procedures and inter-departmental relations. The scope of the question directed the attention to internal

information systems only but in real life, these organisations themselves generate a lot of information which is sought by the outside agencies and therefore, a development of appropriate system to disseminate information for the external users is also equally important. Nevertheless, the debate and discussion generated during these deliberations did help the participants in understanding many finer points and it is hoped that this exercise would go a long way in designing and operationalising information systems in their respective organisations.

A CONCLUDING REMARK

The lead taken by the IIPA in organising this course may prove very crucial because it could provide the badly needed impetus for the implementation of formal information systems in the concerned departments of the government and development authorities. Maybe that the next course, in the form of a workshop, would be conducted by the institute in an year's time where some of the participants from the first course would report the results of their efforts and the actual task of building information systems for the selected topics of urban planning would be undertaken. This will not only benefit the participants and their organisations but will also enrich the literature on this subject. □

Appendix

The composition of the three groups is given below. The first member of each group was designated as respective group leader.

Group I

1. Shri R.M. Lal, Deputy Director (Planning), Delhi Development Authority, New Delhi.
2. Shri D.R. Winston, Executive Engineer, Tamil Nadu Slum Clearance Board, Madras.
3. Shri B. Singh, Assistant Corporation Town Planner, Municipal Corporation, Ludhiana.
4. Dr. R.K. Verma, Health Officer, Municipal Corporation, Bilaspur.
5. Dr. A.K. Chanda, Chief Executive Officer, Haldia Development Authority, Midnapur District.
6. Smt. R. Misra, Assistant Town Planner, Bhubaneswar Development Authority, Bhubaneswar.
7. Shri D.P. Chakraborti, Deputy Director (EP), West Bengal Housing Board, Calcutta.

Group II

1. Dr. V.N. Patkar, Operations Research Specialist, Bombay Metropolitan Region Development Authority, Bombay.
2. Shri S.S. Dalal, Associate Planner, Town and Country Planning Department, Gorakhpur.
3. Shri B.B. Singh, Research Officer, Town and Country Planning Organisation, New Delhi.
4. Smt. S. Janeja, Associate Town and Country Planner, Ministry of Works and Housing, New Delhi.
5. Shri P.K.S. Nair, Senior Research Officer, Town and Country Planning Organisation, New Delhi.
6. Shri K.S. Ramasubban, Chief Executive Officer, Siliguri and Jalpaiguri Development Authority, Siliguri.

Group III

1. Shri R. Dayal, Chief Engineer, Uttar Pradesh Jal Nigam, Lucknow.
2. Shri S.M. Hammad, Superintending Engineer, Uttar Pradesh Jal Nigam, Almora.
3. Shri J.K. Mittal, Deputy Town Planner, Town Planning Department, Jaipur.
4. Shri D.C. Kudesia, Deputy Director (UA), Directorate of Urban Administration, Bhopal.

5. Shri I. Lanukaba Ozukym, Assistant Research Officer, Town Planning Office, Kohima.
6. Shri L.N. Sharma, Junior Town Planner, Town Planning Department, Imphal.

Note : The copies of papers presented by the above groups can be obtained from Prof. Girish K. Misra, IIPA, New Delhi.

Urban Information System— A Comparative Analysis of the two Case Studies on Chengalpattu and Anand

B. B. SINGH

TOWN AND COUNTRY Planning Organisation (TCPO) constituted a Steering Group to identify the data requirement and suggest ways and means to establish Urban and Regional Information System (URIS) in India. On the basis of data needs prepared by the Group, TCPO sponsored two pilot studies on Urban Information System (URBIS) for two towns, viz., Chengalpattu (Tamil Nadu) and Anand (Gujarat) to be carried out by the Town and Country Planning Department, Tamil Nadu and the Town Planning and Valuation Department, Gujarat respectively. The first was started in 1981 while the latter in 1983. Chengalpattu is a medium size town providing the nucleus for a planned New Town, a satellite of Madras Metropolitan Area, with the population of 47329 (1981 census) and only 50 km. away from Madras having very good transport links for easy communication and field survey. Likewise Anand too is a medium size town and a fast growing urban centre in Gujarat with the population of 83936 (1981 census) hardly 70 km. away from Ahmedabad and 100 km. from Gandhinagar.

In this paper, the methodology adopted for the pilot study and a comparative analysis of the result so far generated alongwith further issues have been discussed.

OBJECTIVE

The main objective of the Urban Information System (URBIS) is to supply meaningful information to the system users. Three main users may be identified as planning agencies, implementing agencies and research organisations. The need of information system for planning agencies may be viewed as to understand the current status, to ascertain the past trends, to make future predictions, to understand the relationship and causes of changes, to prescribe norms and to appreciate constraints physical, financial or socio-cultural. The development

agencies may need it to monitor the development programmes seeing target and achievement in physical and financial way, to ascertain reasons for differences in the two and to modify the programmes and target to meet the objectives. Likewise, research organisations may also require it in some way or the other.

In order to meet the information needs, data-quantitative as well as qualitative are to be logically organised, processed and stored so that meaningful information can be retrieved. In a large country such as ours, there exists significant differences in the data system. Therefore, it is important to understand the current system of data organisations. Thus the object of pilot study is to design an information system after analysing the existing data attributes such as data frame (localities), flow, periodicity, timelag, reliability, coverage, accessibility, concept, etc., as available with data agencies and in the process to identify data gaps. Apart from these, study was required to validate the data needs identified by Steering Group and to demonstrate the feasibility of coordinated data collection at all the levels of government.

METHODOLOGY

Both the pilot studies followed essentially the same procedure and a systems approach was adopted for carrying out the studies. The steps involved are broadly categorised as:

- (i) Identification of data source agencies,
- (ii) Format analysis system requirement,
- (iii) Data attribute analysis and format design,
- (iv) Data collection and encoding,
- (v) System development, data processing and tabulation, and
- (vi) Documentation.

In order to identify and select data source agencies, a tentative list of agencies was prepared with the help of municipalities and other organisations. The Steering Group in its report has also mentioned the broad name of the agencies to supply information variable wise. Usually lower level agencies and their addresses were informed by municipalities and with their help higher level agencies were searched out. In any way, an agency schedule was prepared and sent to these agencies for the information on name, address, type and level of agencies, the variable for which the information is available, the format in which data are to be collected, stored and published for each variable along with the publications, the source of collection of information for each variable and the forwarding agencies to whom the information is sent. The variable list suggested by the Steering Group was also appended to

each schedule. The classification of agencies by level was as mentioned below :

- (i) Town level-meaning agencies of town, taluk and division below the level of district,
- (ii) District level-meaning agencies at district and regional levels below the level of state,
- (iii) State level meaning state and inter-state regional levels but below the national level, and
- (iv) National level agencies.

Similarly, the agencies categorised by type were belonging to central government, state government, local body, semi-government, autonomous, private and others. The canvassing was done in three steps, at first a letter by the secretary, Housing and Urban Development of respective governments to the state and national level agencies informing them about the taking up of pilot study and their cooperation; at second step, a letter by the director of DTCP and TPVD enclosing the agency schedule was sent and at a final step the personal contacts of staff explaining the purpose of study. On the basis of information made available, it was intended to assess the extent of data availability. The information of source and forwarding agencies enabled for the two studies to add some more agencies. The agencies which were not having required information and others who did not respond had to be deleted. The agency schedule was also sent to new agencies.

An effort has also been made to find the number of localities at smallest unit at which data are available alongwith the locality maps. This would differ from agency to agency, variable to variable and it was thought that a study of this aspect will help in arriving at basic spatial unit for data collection, storage, processing and referencing of data entities.

Even during the contact, the main stress was on bringing out the information available in the form of periodicals either received by the agencies or sent to their superiors. All the periodicals were gone through to see whether any information is available on any other data-item in the enclosed list or on any item related to the variables listed by the Steering Group. The purpose of collecting information on related variable is to identify any new variable for which information is available. It is to mention here that it was told to the TCPD and TPVD to include any of data-items which they thought to be important for the planning at their level.

After getting the filled up schedules, a final list of agencies possessing information on some of the variables enlisted was prepared and a

detailed variablewise analysis and agencywise variable analysis was carried out. After examining the details of the formats maintained by different agencies collected by respective departments, it was felt to identify a definite agency in case of more than one agency supplying information for one variable. This necessitated to make a next step of data attribute analysis. A format for collection of data attributes was finalised and sent to the different agencies. The format for attribute analysis included definition of variables, data characteristics such as data type, size and unit, data source (primary or secondary), target in terms of sample basis or complete survey, confidence level which is a reliability index, coverage in terms of area within town, frequency of data collection and publication, availability to past and future data, data document alongwith price, data filling system and storage media, data procurement agencies, data cost in terms of cost of collection for URBIS purpose only, data for elementary spatial unit alongwith the availability of data format for collection, storage and publication.

Thus the attribute analysis of data has been taken up in order to understand the nature of data as available with the agencies. The characteristic of data has to be studied in detail to enable us to choose that agency which can assure availability consistency and accessibility. One of the important attributes, is the size of data. By studying this in detail, the magnitude of task can be known and it is helpful in assessing computer time required and duration needed for data collection.

For attribute analysis all the agencies were not taken into account. They were selected on the following basis:

- (i) If more than one primary agencies existed, all of them taken for the analysis.
- (ii) Our decisions and reasons that primary sources to be appropriate agencies to supply data.
- (iii) Secondary agencies were also included who collect and publish data required for any variable.

After finalisation of agencies from which data have to be collected for each variable, the next logical step was system design. It involves finalisation of format in which data have to be collected from the selected agencies, identification of data gaps, actual data collection, encoding and geocoding of data and development of georeferencing, storage and retrieval system. As the data collection format may be slightly different from the actual format maintained by the agency, this has to be designed.

System development has to be done before actual data collection. Later on it was decided that National Informatics Centre, (NIC) will be the guiding factor. For the processing of data, some statistical soft-

wares have to be generated. Need for computer is implicit; in fact the second report of the two pilot studies namely 'Report on System Requirement' was done for this reason only.

Though the two studies have still given only three reports, viz., 'The Agency Analysis Report' the 'Report on System Requirement' and 'Attribute Analysis and Format Design Report' but Chengalpattu and Anand both have started data collection. In case of Chengalpattu some of the data have been put into the system and output has also been generated. Maps are essential part of data in many fields. The conventional maps cannot be directly used for quantitative analysis and numerical manipulation. The problem can be solved by using geocode-numerical codes used for referencing a geographical area; longitudes and latitudes being one set of numerical codes used for locating a point or area. This is being experienced in the two studies. Some of the statistical softwares are being prepared. It is expected that whole of the study along with documentation may be completed in a couple of months. In the following paragraphs the analysis has been given only on the basis of the three reports so far generated.

ANALYSIS

Though both the pilot studies have more or less similar approach in identification of agencies but their efforts really differ. If we observe the inventories of agencies in case of both the studies (Annexure 3) the following points emerge:

- (i) Chengalpattu has identified 113 agencies out of which town, district, state and national level agencies account for 33, 28, 21 and 31 respectively, a sort of decreasing order with respect to the supremacy of agencies in level. Anand did it in reverse order totalling 85 identified agencies and fragmenting it into 3, 8, 42 and 32 respectively. Thus from the very beginning Anand failed to identify lower level agencies and depended more on higher level agencies. It may be remembered that here also hierarchy works and data in most of the cases is really collected at lower level and passed over to higher level agencies.
- (ii) In search of suitable source agencies some were deleted while some were added. In case of Chengalpattu, 15 agencies were deleted and the same number added. Anand has added only 8 agencies but deleted more agencies (21). In the process it happened that Chengalpattu has to delete town and district level agencies in more proportion than Anand. In fact Anand needed to add new agencies and delete non-information having agencies.

- (iii) Finally, selected agencies have the same story as the first paragraph in this section. Chengalpattu has selected 58 elementary agencies (Town and district levels accounting for more than 50 per cent of the total agencies selected, while in the case of Anand elementary agencies are only 9 out of 72. Thus constituting a meagre percentage of 12.5.
- (iv) The number of agencies identified for 22 main variables and 274 subvariables were already less but the response was also poor. In case of Chengalpattu only 54 agencies responded out of 113 finally selected while in case of Anand 42 agencies out of 72 finally selected gave the response. Thus just 50 per cent of the agencies responded. Now if there are some data gaps, cannot some part of it may be accounted to non-responding agencies?

AVAILABILITY OF INFORMATION VARIABLEWISE

Let us analyse the variablewise agency analysis (Annexures 3 and 4). In case of Chengalpattu, 97 subvariables could have found only one agency, 58 subvariables two agencies, 39 subvariables three agencies and 12 subvariables seven agencies each. In the case of Anand the dependence on only one agency was a bit less, i.e., only 46 subvariables confine themselves to only one agency. For 40 subvariables two agencies, 39 subvariables three agencies, 25 subvariables four agencies, 2 subvariables six agencies and finally for 12 subvariables seven agencies were selected. This analysis is being given on the basis of agencies preferred to be taken for attribute analysis.

As we know, the agencies were selected on the basis of several criteria like primary sources, frequent availability of information, format maintenance, elementary level data availability, etc. Of course, these were accounted only through attribute analysis. The subvariables for which only one agency existed had to be selected automatically. Amongst the selected agencies 'municipality' is the foremost, as a single available agency. It was selected for 74 and 42 subvariables respectively in case of Chengalpattu and Anand. Inspector of Statistics in the case of Chengalpattu and Bureau of Economics and Statistics in the case of Anand, though being secondary agencies, were selected for only 2 subvariables in Chengalpattu but alongwith municipality found acceptance for 2 and 80 variables respectively. A complete list has been provided in Annexure 3 ... From this we can get the idea that statistics and municipality together in any form account for more than 50 per cent of subvariables. Census is the third agency having information for 28 and 9 subvariables in the two cases. Anand has less only because if it could not get information for 1981 census, it categorised it into data-gap while

Chengalpattu accounted for census only.

If we analyse the common agencies for variables municipality seems to have the largest share that is in two studies, 91 subvariables are there where common agencies selected are municipalities. Then comes the census with 8 and statistics with 4 subvariables. In short, we can categorise the selected agencies as under:

- (a) Municipality, Tehsildar, etc., which are primary agencies at town level providing the bulk of data.
- (b) Inspector of statistics in case of Chengalpattu and Bureau of Economics and Statistics in the case of Anand, though are secondary agencies, but maintain the periodic publication of most of the data in the required format.
- (c) Census, a state level organisation but collecting information at primary level.
- (d) District Education Office, District Industries Centre, Transport Office, Employment Office, Post Office, Police Department, etc., being primary agencies for specific type of variables and subvariables.

FLOW OF DATA ORIGIN—DESTINATION

If we do this analysis we find only a few agencies disseminating the information to other agencies. There comes firstly, the municipality, Census, etc., which collect information for its own sake but publish them for the users, and secondly, the Statistical Offices, Police Departments, Education Offices, etc., which collect data and pass them over to their superior offices. This analysis was done to know the new agencies which are primary—but unfortunately only a few more we were able to add. One of the reasons may be the failure of efforts put into the two studies. The inadequate response of agencies itself proves it. True for few subvariables, we could get more than one primary agencies but their number is not significant.

Perhaps this analysis was not done in earnest way otherwise there is no reason that Anand should select Bureau of Economics and Statistics, a state level organisation in place of District Statistical Office, a district level agency, which provides required data to the Bureau. The same thing happens as in the preference of national agency Town and Country Planning Organisation (TCPO) in place of its own department, the Town Planning and Valuation Department. I understand that since the TCPO has the Integrated Development of Small and Medium Towns (IDSMT) scheme and these two towns are medium towns, it has some information and again that is what is provided by the State Town Planning Department.

Agency Analysis should have been carried out for each minor subvariables.

FORMAT ANALYSIS

This study enables to select appropriate format in which the data are to be collected to save time and avoid confusion. This is the format only through which information is disseminated. Available formats for collection/storage/publication of data by each agency were tabulated to understand the accessibility of data and it was found that only a few agencies which have statistical or reporting function like Census, Municipality, Bureau of Economics and Statistics, District Statistical offices, Electricity Board, Police departments, maintain formats.

Many of the other agencies do not maintain it at all. For humidity, wind direction, wind velocity, water resources, etc., we could not get any format at all. For those variables for which we had format, we just compared with our required format and a new format was constructed for the sake of data collection.

ELEMENTARY—SPATIAL UNIT

For any subvariables there are some agencies, which provide information gathered at different elementary units. Within the town, the area is generally divided as town area, revenue ward area, municipal ward area, municipal block area, street building household, etc. Census may give the information as census ward and census block and the census ward may be entirely different from revenue ward area. Thus there are some agencies which collect data covering an area beyond the town area. Though information received is at preliminary stage, on the smallest areal unit and is not exhaustive but following tentative conclusions emerge:

- (i) Area unit was not uniform for all agencies.
- (ii) Data available at smallest unit might not be easily accessible because published data in some cases were represented after aggregation.

DATA GAPS

Data Gaps mean the non-availability of any agency in any way to give required information for some of the variables. These have been identified by the two studies and may be categorised into :

- (i) The variables and the subvariables which are not relevant

for the two studies. A complete list has been provided in Annexure 5. In these urban agglomerations, plan area, population with respect to them, vocational institution, air port, construction cost are important to mention. One of the reasons may be the failure of the Steering Group to provide data needs for local level planning. In the process with a view to put all the data for compatibility at all levels of planning, it might have done some error of inclusion.

- (ii) The variables for which actually no agency could be identified. Here, besides the Steering Group, the failure of efforts of the two studies to identify the agencies may be accounted for failure. The response of 48 per cent and 58 per cent agencies for Chengalpattu and Anand respectively itself speaks of this. Had the whole agencies identified and responded for information, the column of data gaps could have been reduced.
- (iii) There are some other types of data gaps which are essentially part of (ii) but include some more. In most of the cases the variables belong to the agency 'Director of Census Operation'. Either due to failure of the census to publish the required information for 1981 census accounts for it or it is the inability of the census to give information at town level. Perhaps we can get the information after some time or by incurring more expenditure towards acquiring the data.
- (iv) National income/assets, housing structure, institutional arrangements, landuse, etc., which need periodic survey come in this category. The Town Planning Department collects some of these information during the master plan preparation and so does the National Sample Survey Organisation but their periodic availability has not so far been ensured.

Besides, the areas where we have data gaps, some of other data have also been added seeing the requirement of State Town Planning Departments. From the very beginning the 22 main variables on Integrated Urban Development Programme (IUDP) with 17 subvariables were added for monitoring the integrated development of Small and Medium Town (IDSMT) programmes. Chengalpattu has added some more variables like revenue ward area, revenue block area, and some variables on communication which have been shown in Annexure 3.

PROBLEMS AND DISCUSSION

There were some of the problems inherent in data identification while some emerged in the process of study. Let us at first see the

variables selected by the Steering Group. The Steering Group in selection of variables has taken into account the three principal components—physical environment, the socio-economic environment and services and amenities. No other specific criterion was offered though it says that it was guided by the need to include aspects considered crucial for planning at the local level and the need to reflect broad relationships between various components to assist decision makers at higher levels. Even then some of the comments may be offered:

- (i) Omission of certain variables like only a few variables on air and water pollution, not many variables on investment, turnover, etc., and no variable for area-specific planning has been included.
- (ii) There are many variables which are irrelevant for town level planning. They may be clear from Annexure 5.
- (iii) There is inconsistency in terming variables and subvariables: some of the variables are single indicator like 'area'; some are array of matrices like "capital expenditure (by municipal bodies) by broad heads of expenditure and sources of funding".
- (iv) There is much ambiguity for definitional purpose like what is meant by physical features and institutional arrangement? These are not well spelt out.
- (v) Really the variables selected seem to be fit more for compatibility purposes and national level planning than at town level. They have mentioned main variable 'I' as Industrial Estates. In case there is no estate, is it not worthwhile to take industries, factories, etc., into account?
- (vi) Though the formats have been given by the Steering Group but according to the needs of broad relationship, it needs to be changed accordingly.
- (vii) Unit, dimension, etc., have not been shown.

In fact it was thought that during the course of pilot studies many things will be sorted out.

During the course of study the following problems emerged besides the conceptual and definitional aspects.

- (i) Some of the agencies did not indicate full scope of information available with them while others indicated the availability for data which have no bearing on their functions. As a whole the response was less and even the agencies which responded took more than as anticipated.
- (ii) Flow of information did not come properly.

- (iii) In some of the agencies, the areas of jurisdiction are not coterminous with their administrative boundary. The availability of data for different areal units is a problem which can be solved only through using grid systems. Again there will be problems as the information may not be available at administrative level and hence the implementation of any programme will be upset. Therefore, the town boundaries have to be used as areal units for the time being. The grid system could be updated later on.
- (iv) It appears that many of the agencies do not maintain format for dissemination of information which must be the part of any system. Therefore the agencies which have the data only for their internal use should be required to maintain format.
- (v) There are lot of data gaps. Firstly, some of the agencies like Census, etc., may be required to furnish information in time. Time lag has become a part of our data culture which should be avoided. Secondly, some of the sample surveys on periodic basis may be initiated. Decennial land use survey may be started along with the Census and so should the surveys on income and assets by the National Sample Survey Organisation (NSSO). Thus the main problems are accessibility, compatibility and timeliness which could have been removed.

CONCLUSION

Though the pilot studies are still not completed but their success to evolve an Urban Information System (URBIS) is quite implicit. It has generated and shown the availability of information. It may be said that our country is data-rich. These pilot studies are probably the first to start on such a scale. Still some of the issues may be seen through the following points:

- (i) No operational information system can meet all the needs of all possible users—and in a country like ours which has the vast differences in physical, socio-economic as well political areas of regions, it becomes a sort of near-impossible venture. Therefore we could better set priorities by identifying vital data needs and set different system for different regions and also for different levels of government. We have started decentralised planning. Hence, we should try to evolve system to assist planning also at the grassroot level seeing the needs of cities/towns and their level of operation. There will be a problem of aggregation at subnational and national levels but so what? Our concern is more to raise the living conditions of masses

and for that true indicators are needed.

- (ii) At the national level we need not have an information system except, of course, for monitoring certain national programmes. Information System requires to seek, observe and also foresee the planning needs of the nation and if it cannot change it more fastly than the policy itself why should then it be needed. So for the time being let us have a sound data bank at the national level.
- (iii) Without any clear-cut sound planning process, not to speak of information policy, it seems difficult to evolve an information system.
- (iv) Identification of indicators should be such as to cater to the needs of planners. This could be the basis on which decisions could be taken. Before the data finalisation it has to consider the level of planning and the users of information. Likewise socio-economic conditions on spatial criteria must be given more importance.
- (v) An integrated approach is to be developed for establishing information system taking into account various data sources and remote sensing techniques. This will be useful for monitoring and updating many of the information. It should be realised that this is a multi-level, multi-institutional and multi-disciplinary effort. Other new concepts of planning like environmental issues should be taken into account.
- (vi) Computerisation is another needed tool and software required should be generated and made more flexible and generalised in nature. Training is also needed for the personnel to know how to collect data, how to use the computers and so on. □

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6. *Pilot Study on URBIS—A Case Study for Chengalpattu—Report on Attribute Analysis Format Design*, DTCP, 1984.
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Annexures

Annexures 1 and 2 give the inventory of agencies alongwith their levels and types for the two studies.

Annexure 3 must be seen alongwith Annexure 4. Here only a short name of agencies has been given mainly for two reasons to draw out some determinant common agencies with respect to function and set-up and to accommodate six columns of agencies together in terms of volume of space to be taken. This annexure has been prepared on the basis of agencies for which Attribute Analysis was carried out. Here all the columns of this Table are important. Column 2 may be regarded as selected by the Steering Group. Only the 22nd main variable V-IUDP, has been taken by two studies just to monitor the IDSMT schemes as both of the towns happen to be small and medium towns. The other 6 subvariables within this column are selected by Chengalpattu study for its own causes.

The next three columns speak for the agencies which have the information for required variables and it was thought to give equal probability to all of them to be selected. These will give a list of agencies whom local level information system may require for its set up—though may not be needed completely for the study. Here again common agencies may presume such sort of agencies to exist in other towns too, therefore, more important to start with.

Further next three columns are the agencies selected or to be used for data gathering for setting up of Urban Information System. Again the common selected agencies will lay foundation for system's success in other towns.

A word of caution that common agencies do not mean fully common in level and set-up. Maybe that the two studies have selected different types of agencies in level but common in function. The agencies which have some numbers like 'industry-2', 'industry-3', mean that these are similar to the agency 'industry' but may differ in certain aspects. Another point is that if the three columns of 'common', 'Chengalpattu, and 'Anand' have some agencies, it means that Chengalpattu and Anand have some more agencies other than common agencies with their name listed there in relevant columns. The sign '—' means that they could not identify any agency other than common. While columns bearing the sign 'x' identify the non-availability of any agency for the attribute analysis in respect of selection, the variable with '*' means that they were regarded as data gaps.

Annexure 4 is a part of Annexure 3. It just expands the name of agencies written in short in Annexure 3. It gives the list of agencies taken for attribute analysis in two studies. Other importance it reveals is that it shows the availability of agencies for certain variables with

level of agencies in two cases.

Annexures 5, 6, 7 enlist the data gaps—meaning the variables for which no agencies could be selected. Their details have been discussed in paragraph 'Data Gaps'. Here some words can be said about the inconsistency which these annexures as a whole keep with Annexure 3. The inconsistencies are due to the continuous exercise of identification of new agencies even after the attribute analysis, emergence of some more data gaps at the time of data collection, confusion due to putting some variables in 'non-relevant column' or due to the agencies which may have the information if the variables exist, after some time. The example may be given of 'No. of Airports'. The other point which emerged was that the detailed agency analysis was carried out by main variable rather than sub-variable level in Chengalpattu. In the process some of the data gaps for sub-variables were hidden. Census created much more problems. Annexure 7 reveals these.

Annexure 1**INVENTORY OF AGENCIES—CHENGALPATTU**

<i>Agencies</i>	<i>Town</i>	<i>District</i>	<i>State</i>	<i>National</i>	<i>Total</i>
No. of agencies identified	33	28	21	31	113
No. of new agencies identified	—	2	13	—	15
Total No. of agencies	33	30	34	31	128
No. of agencies deleted	4	1	5	5	15
No. of agencies finally selected	29	29	29	26	113

AGENCY TYPE BY LEVEL (FINALLY SELECTED)

<i>Type</i>	<i>Central Government</i>	<i>State Government</i>	<i>Local Body</i>	<i>Autonomous</i>	<i>Private</i>	<i>Total</i>
Town	3	16	1	8	1	29
District	3	19	—	6	1	29
State	4	12	—	13	—	29
National	21	—	—	5	—	26
TOTAL	31	47	1	32	2	113

AGENCY TYPE BY LEVEL (RESPONDED)

<i>Type</i>	<i>Central Government</i>	<i>State Government</i>	<i>Local Body</i>	<i>Autonomous</i>	<i>Private</i>	<i>Total</i>
Town	3	14	1	7	1	26
District	1	16	—	2	1	20
State	1	1	—	4	—	6
National	2	—	—	—	—	2
TOTAL	7	31	1	13	2	54

Annexure 2

INVENTORY OF AGENCIES—ANAND

<i>Agencies</i>	<i>Town</i>	<i>District</i>	<i>National</i>	<i>State</i>	<i>Total</i>
No. of agencies identified	3	8	42	32	85
No. of new agencies identified	3	—	5	—	8
Total No. of agencies	6	8	47	32	93
No. of agencies deleted	2	3	12	4	21
No. of agencies finally selected	4	5	35	28	72

AGENCY TYPE BY LEVEL (FINALLY SELECTED)

<i>Type</i>	<i>Central Government</i>	<i>State Government</i>	<i>Local Body</i>	<i>Autonomous</i>	<i>Semi Government</i>	<i>Total</i>
Town	1	1	1	—	1	4
District	—	5	—	—	—	5
State	10	15	1	3	6	35
National	19	—	—	9	—	28
TOTAL	30	21	2	12	7	72

AGENCY TYPE BY LEVEL (RESPONDED)

<i>Type</i>	<i>Central Government</i>	<i>State Government</i>	<i>Local Body</i>	<i>Autonomous</i>	<i>Semi Government</i>	<i>Total</i>
Town	1	1	1	—	1	4
District	—	4	—	—	—	4
State	7	14	1	2	4	28
National	2	—	—	4	—	6
TOTAL	10	19	2	6	5	42

Annexure 3

SELECTION OF AGENCIES

Variable Code	Name of Variables	Agencies Responded			Agencies Selected		
		Common	Chengalpattu	Anand	Common	Chengalpattu	Anand
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Geophysical							
A1	Lat-Long.						
A2	Altitude						
A3	Climate						
	A3.1 Temperature	Statistics	Surveyor	Municipality	Statistics	---	Municipality
	A3.2 Rainfall			Water Commission			Meteorology
	A3.3 Humidity			Water Commission-2			
	A3.4 Predominant Wind direction			Meteorology			
A4	A3.5 Wind velocity						
	Topography						
	A4.1 Physical Features						
A5	A4.2 Slope	Statistics	Tehsildar Meteorology	Soil & Land Survey Statistics-2 TCP	Statistics	Municipality	Statistics-2 Soil & Land Survey
	Soil type—top soil (A5.1)	---	*	Meteorology	---	*	Meteorology
A6	Water						
	A6.1 Surface source	Municipality	---	Ground Water	Municipality	---	---
	A6.2 Sub surface source						
	A6.2.1 Aquifer	Municipality	Water Commission	---	Municipality	---	---
	A6.2.1.1 Location	Ground Water					
	A6.2.1.2 Capacity						
	A6.2.1.3 Depth						

B. Area

B1 Municipal Area	Municipality	Census	—	Municipality	Statistics
**B11 Revenue Ward Area	} Statistics	Municipality Statistics	*	—	*
**B111 Revenue Block Area					
* B2 Urban Agglomeration	*	*	Municipality Statistics	*	Municipality Statistics
B3 Plan Area	—	*	—	*	*

C. Population

C1 Population	Municipality	—	Municipality-2 Statistics	Municipality	Statistics Census
C1.1 Municipal area (P,M,F)	Census	—	—	—	—
**C1.2 Municipal (Census) Ward	} Census Municipality	Census Municipality	*	*	*
**C1.2.1 Census Block					
C1.2.2 Urban Agglomeration (P,M,F)	*	*	Municipality-2 Statistics Census, Municipality	*	*
C1.3 Plan Area (P,M,F)	—	—	—	—	—
C2 Aggl. Sex distn. (9 sub variables as breakup)	Census	—	—	Census	Statistics Census Municipality
C3 Vital Statistics					
C3.1 No. of Births	Municipality	Registrar Tehsildar	Statistics Health & Medical	Municipality	Statistics
C3.2 No. of deaths					
C3.3 No. of infant deaths					
C3.4 No. of marriages	—	Registrar	*	—	*
C4 HH dist.-size (5 sub-variables as breakup)	—	Census	*	—	*
C5 Migration (C5.1—C5.4)	—	Census	*	—	*
C6 Literacy					
C6.1 No. of literates (P,M,F)	Census	—	—	Census	—

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	C6.2 Students enrolment by age group (4 sub-variables as break up)	—	Education Girls School	*	—	Education Girls School	*
	*C6.3 Enrolment in vocational institutions	*	*	*	*	*	*
D. Crimes							
D1	No. of crimes	Police	Police-2	Police-3	Police	Police-3	Police
D2	No. of police stations	Police	Census	Police-3	—	—	—
E. Employment Status and structure							
E1	Workers—sex and age	—	Census	*	—	Census	*
E2	Workers—9 industrial categories	Census	—	Statistics	Census	—	Statistics
E3	Workers—broad occupational groups	—	*	Census	—	*	Census
E4	No. of workers and units by two digit NIC classification	—	*	Factories Inspector Industry-2 TCP, Industry	—	*	Statistics Industry-2
*E5	Persons engaged in petty trades and jobs not elsewhere classified	*	*	*	*	*	*
E6	Registered with employment exchange—sex and level of education	Employment	—	Employment-2	Employment	—	—
F. Household Income and Assets							
F1	by specific income groups	—	Supply Officer Municipality	*	—	Supply Officer Municipality	*
F2	by Type and value of assets	—	Municipality	*	—	—	*
F3	by consumption groups	—	Sample survey	*	—	—	Sample Survey

G. Public Investment

[illegible]

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
G1.13	Telephones	—	*	Municipality Statistics Municipality-2 Housing-2	—	*	Municipality Statistics
<i>H. Banking</i>							
H1	No. of offices— Commercial Banks	—	Municipality Statistics Census	Bank TCP	—	Municipality	Bank
H2	Loans advanced by broad categories including EWS	—	Bank-2	*	—	Bank-2	*
<i>I. Industrial Estates</i>							
I1	No. of industrial estates	—	*	Industry Industry-2 Industry-3 TCP	—	*	Industry-2
I2	No. of workers employed in each estate	—	*	Industry Industry-2 Industry-3 TCP	—	*	Industry-2
**13	Industry/Factory Indus- trial Estates		Industry			Industry	
**14	Industry/factory Industries outside Industrial Estates		Municipality Statistics Industry-2			Municipality	
<i>J. Institutional Arrangements for specific Development functions</i>							
J.		—	Municipality	*	—	Municipality	*
<i>K. Financial situation of Municipal Bodies</i>							
K1	Revenue income by source (domestic, assigned taxes, grants, others (specify))	Municipality	—	Municipality-2 Statistics	Municipality	—	Statistics

K2	Extraordinary income by source (loans, etc.)	Municipality	Municipality-2 Statistics Housing-2	Municipality	Statistics
K3	Revenue expenditure by major heads Adm. Edn., health, etc.	—	—	—	—
K4	Capital expenditure by broad head of expenditure and sources of funding	—	—	—	—
L. Landuse and pattern of Development					
L1	Land ownership	—	—	—	—
L1.1	Public ownership	Municipality	TCP	Municipality	—
L1.2	Private ownership	—	*	—	*
L2	Landuse by different categories (L2.1-L2.10)	Municipality Tehsildar	TCP-2	Municipality	—
I3	Pattern of Development	—	—	—	—
L3.1	Land values (min/ max/ranges)	Registrar	Municipality	Registrar	Municipality
L3.2	Type of structure and approx. age of properties	Municipality	—	Municipality	—
L3.3	Persons per room	—	*	—	*
L3.4	Rateable value of properties	Municipality	—	Municipality	—
L3.5	Amenities/facilities	Municipality	—	Municipality	—
L4	Norms/standards followed if any, for allocation of land for specific purpose (L4.1—L4.5)	Census TCP	—	—	*
L5	Public acquisition deve- lopment and disposal for land if any (S5.1—S5.5)	—	Municipality	—	Municipality
		Tehsildar Sp. Tehsildar	Tehsildar Sp. Tehsildar		

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M. Housing Stock and facilities							
M1	No. of houses with break-up by structural conditions (Kachha, Pucca, etc.)	Municipality	Census TCP	Housing	Municipality	—	—
M2	Dwelling units generated during the year (single, double, multistoreyed) (M2.1—M2.4)	Municipality Housing	Cooperative	—	Municipality	—	—
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> M3 HH by type of Accommodation facilities (no.) — M3.1 HH with one room — M3.5 HH with 5 rooms — M3.6 HH with more than 5 rooms — M3.7 HH living in slums/chawls </div> <div style="margin-left: 10px;"> <div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 5px;">}</div> <div> Census Municipality </div> </div> </div> </div>							
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> M3.8 HH lying in hutments M3.9 HH settled under site/services programmes M3.10 HH living in exposed sites M3.11 Any other category (specify) </div> <div style="margin-left: 10px;"> <div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 5px;">}</div> <div> Census Municipality </div> </div> </div> </div>							
M4	Construction cost as per PWD/CPWD norms	—	PWD-2 CPWD	*	—	PWD-2	*
N. Water supply							
N1	Source and capacity (N1.1)	Municipality	Census Water Commission	Statistics Min. of W/H	Municipality	—	Statistics
N2	Water supplied (N2.1, N2.2)	Municipality Statistics	—	Min. of W/H	Municipality	—	Statistics
N3	Method of distribution (N3.1, N3.1.1)	Municipality	Statistics	—	Municipality	—	—

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
P4 Area covered							
*P5	Bulk supply to other distributors, if any	*	*	*	*	*	*
P6	Electricity supply by major class of consumers (No. of connections and quantity (P6.1—P.6.5))	Statistics	Electricity	Municipality TCP	—	Electricity	Municipality Statistics
P7	Rate schedule (current)	—	Electricity	*	—	Electricity	*
Q. Transportation							
Q1	Type of facilities available (Q1.1-Q1.6)	Municipality Statistics	Highways	TCP	Municipality	Highways	Statistics
Q2	Local Bus Service (Q2.1—Q2.7)	Transport	Transport-3	Municipality	Transport	Transport-3	Municipality
Q3	No. of Auto vehicles registered by type	Transport	—	Statistics	Transport	—	Statistics
Q4	No. of other vehicles cycles, cycle-rickshaws, tongas, bullock carts, etc.	Statistics	Municipality	Transport	—	Municipality	Transport Statistics
**Q5	Peak Hour Traffic volume on Important Roads	TCP					
**Q6	Level crossing traffic delay study.	TCP					
**Q7	Demand and supply of parking spaces	TCP					
R. Communications							
R1	No. of Post Offices	Post Master Tele-commu- nication	Municipality	Statistics	Post Master	—	Statistics
R2	No. of Telegraph Offices	Post Master Tele-commu- nication	Municipality	Statistics	—	Post Master	Tele-commu- nication Statistics
R3	No. of Telephones						

R4	No. of persons on waiting list for telephones	Tele-communication	Post Master Municipality	—	Post Master	Telecommu- nication
R5	No. of Telex connections	Tele-communication	Post Master Municipality	—	Post Master	Telecommu- nication
<i>S. Medical and Health Services</i>						
S1	Type of facilities (S1.1—S1.6)	Municipality	Medical College *	Statistics	Municipality	Statistics
*S2	No. of Patients originating from areas beyond city limit	*	*	*	Medical College *	*
S3	Special school Medical Projects (S3.1—S3.3)	—	Medical College	*	Medical College	*
S4	Sanitation facilities (S4.1—S4.5)	Municipality	—	—	Municipality	—
S5	Refuse and garbage collection and disposal (S5.1) (S5.1.1—S5.1.4) (S5.2)					
*S6	Special arrangements for disposal of industrial wastes/effluents, if any.	*	*	*	*	*
*S7	Other health facilities not elsewhere classified (specify by agency)	—	Municipality	*	Municipality	*
S8	Incidence of Malaria cases	—	Municipality	*	Municipality	*
<i>T. Education</i>						
(T1. T1.1—T1.4, T2, T2.1—T2.8)		Municipality Statistics	Girls School Arts College	Education Primary	Education Girls School Arts College	Municipality Statistics
Type and No. of schools, colleges and other institutions		Education	Medical College, ITI	Education-2 NCERT	Medical College, ITI	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>U. Recreational and cultural facilities (U1—U13)</i>	Municipality	TCP	Statistics	Municipality	TCP	Statistics
	<i>V. IUDP Schemes</i>						
	Name and period Fund allocated and re- leased and achievement (V1.1—V1.3)	Municipality	—	Municipality-2 TCP-2	Municipality	—	—

Annexure 4

NAME AND ADDRESS OF AGENCIES

Sl. No.	Common Short Name	Complete Name	
		Chengalpattu	Anand
(1)	(2)	(3)	(4)
1.	Municipality	Commissioner, Chengalpattu, Municipality	Anand Municipality, Anand.
2.	Municipality-2	—	Director of Municipalities, Ahmedabad.
3.	Statistics	Inspector of Statistics, Chengalpattu.	Bureau of Economics and Statistics, Gandhinagar.
4.	Statistics-2	—	District Statistical Office, Nadiad.
5.	Surveyor	Surveyor General of India, Survey of India, Dehradun.	—
6.	Soil and Land Survey	—	All-India Soil and Land Use Survey, Ahmedabad.
7.	Tehsildar	Tehsildar, Chengalpattu Taluk	—
8.	Sp. Tehsildar	Sp. Tehsildar, Adidraavidar Welfare, Chengalpattu.	—
9.	Meteorology	Regional Director, Meteorology Department, Madras.	Indian Meteorological Centre, Ahmedabad.
10.	TCP	Director of Town and Country Planning, Madras	Town and Country Planning Organisation, Delhi.
11.	TCP-2	—	Town Planning and Valuation Deptt., Ahmedabad.
12.	Ground Water	Chief Engineer, Ground Water Cell, Madras	Central Ground Water Resource Board, Gandhi Nagar.
13.	Water Commission	Supervisor, Central Water Commission, Chengalpattu.	Superintending Engineer, Water Resources Investigation, Ahmedabad.
14.	Water Commission-2	—	Gujarat Water Resources Development Corporation, Gandhinagar.
15.	Census	Director of Census Operation, Madras.	Director of Census Operation, Ahmedabad.
16.	Registrar	Joint Sub-Registrar Chengalpattu.	—
17.	Education	District Educational Officer, Chengalpattu.	District Educational Officer, Nadiad.
18.	Education-2	—	Director of Education, Gandhinagar.
19.	Girls School	Inspector of Girls School, Kancheepuram.	—
20.	Education-Primary	—	District Primary Education Officer, Nadiad.

(1)	(2)	(3)	(4)
21. Medical College	Dean, Medical College Hospital, Chengalpattu.	—	—
22. Arts College	Principal, Government (Vadachalar) Arts College, Chengalpattu.	—	—
23. NCERT	—	—	National Council of Educational Research and Training, New Delhi.
24. ITI	Principal, Industrial Training Institute, Chengalpattu.	—	—
25. Health and Medical	—	—	Director of Health, Medical Services and Education, Ahmedabad.
26. Police	Superintendent of Police, District, Kancheepuram.	—	District Superintendent of Police, Anand.
27. Police-2	Sub Inspector of Police, Chengalpattu.	—	—
28. Police-3	—	—	Inspector General of Police, Ahmedabad.
29. Employment	District Employment Officer, Kancheepuram.	—	District Employment Exchange Office, Nadiad.
30. Employment-2	—	—	Director of Employment and Training.
31. Supply Officer	Taluk Supply Officer, Chengalpattu Town.	—	—
32. Sample Survey	National Sample Survey Organisation, Sastri Bhavan, Madras.	—	—
33. Housing	Executive Engineer, Tamilnadu Housing Board, Korattur.	—	Gujarat Housing Board, Ahmedabad.
34. Housing-2	—	—	Secretary, Panchayat Urban Development Department, Gandhinagar.
35. PWD	Executive Engineer, Public Works Department, Building Division, Kancheepuram.	—	—
36. PWD-2	Asstt. Engineer, PWD, Chengalpattu.	—	—
37. CPWD	Central Public Works Department, Shastri Bhavan, Madras.	—	—
38. Electricity	Asstt. Engineer, Tamilnadu Electricity Board, Chengalpattu.	—	—
39. Highways	Asstt. Divisional Engineer, National Highways, Chengalpattu.	—	—
40. Transport	Regional Transport Officer, Kancheepuram.	—	Director of Transport, Ahmedabad.

(1)	(2)	(3)	(4)
41. Transport-2	Pallavan Transport Corpn., Madras	—	
42. Transport-3	Thenthali Feriyar Transport Corpn., Chengalpattu.	—	
43. Industry	Deputy Director of Industries and Commerce, Kancheepu- ram.	Commissioner of Industries, Ahmedabad.	
44. Industry-2	District Industries Centre, Kancheepuram.	District Industries Centre, Nadiad.	
45. Industry-3	—	Gujarat Industrial Develop- ment Corporation, Ahmeda- bad.	
46. Factories Inspector	—	Chief Inspector of Factories.	
47. Cooperative	Deputy Registrar of Coopera- tive Societies, Chengalpattu.	—	
48. Post Master	Post Master, Head Post Office, Chengalpattu.	Post Master General, Ahmedabad.	
49. Tele-communi- cation	Sub-Divisional Officer, Tele- graphs (Telephones) Chengal- pattu.	Gujarat Telecommunication Circle, Ahmedabad.	
50. Bank	Reserve Bank of India	—	
51. Bank-2	Relevant Banks	—	
52. Min. of W/H	—	Secretary, Ministry of Works and Housing, Delhi.	
53. Public Health	—	Public Health and Sanitary Division-2, Anand	
54. Water Supply Board	—	Gujarat Water Supply and Sewerage Board, Gandhi- nagar.	

Annexure 5**DATA GAP—1****VARIABLES NOT RELEVANT FOR TOWN**

Variable Code	Variable Name	Relevancy	
		Chengalpattu	Anand
(1)	(2)	(3)	(4)
A6.1	Geophysical—Water-surface source/River/Stream/Lake/Estuaries/Ponds	—	*
B2	Area—Urban Agglomeration	*	*
B3	Area—Plan Area	*	*
C1.2	Population—Urban Agglomeration	*	*
C1.3	Population—Plan Area	*	*
C6.3	Literacy—Enrolment in vocational Institutions	*	—
L2.5.3	Land use—Transport, Communication and Utilities—Air Transport.	*	*
L2.5.4	Land use—Transport, communications and utilities—Airport.	*	*
L2.8	Land use—Agriculture, Mining and quarrying. (L2.8.1—L2.8.2)	—	*
N6	Water supply—Amount of bulk water supply to other public authorities outside corporate area, if any.	*	*
O7.2	Sewerage—Sew-age disposal—Irrigation—quantity and area of land irrigated.	*	—
O7.3	Sew-age — disposal — Mechanical Methods—quantity.	*	—
O7.4	Sewerage—Sew-age disposal—Oxidation pond—quantity.	*	—
P3	Electricity—Quantum of power generated locally, if any—Type of plant/hydro/thermal/diesel—installed capacity (p3—1-p3.1.1)	*	*
P4	Electricity—Area covered.	—	*
P5	Electricity—Bulk supply to other distributors, if any.	—	*
Q1.3	Transportation—Airport (national/international/both)	*	*
Q1.4	Transportation—Seaport.	*	*
Q1.6	Transportation—Waterways	*	*
S3	Medical and health services—Special School Medical Projects (nature and coverage of number of schools and students. (S3.1—S3.3)	—	*
S6	Medical and health services—Special Arrangement for disposal of Industrial wastes/effluents, if any.	*	*
T2	Education—Higher Education (T2.1—T2.8)	—	*
T2.7	Education — Higher Education—Vocational Schools.	*	*

(1)	(2)	(3)	(4)
U4	Recreational and cultural facilities—Stadium	—	*
U5	Recreational and cultural facilities—Swimming Pools	—	*
U7	Recreational and cultural facilities—Museum.	*	*
U8	Recreational and cultural facilities—Zoo.	*	*

* Denotes the attribute 'not relevant'.

—Denotes the attribute 'relevant'.

Annexure 6

DATA GAP—2

VARIABLES NOT COVERED BY AGENCIES

Variable Code	Variable Name	Coverage	
		Chengalpattu	Anand
(1)	(2)	(3)	(4)
A3.3	Geophysical—Climate—Humidity	*	—
A3.4	Geophysical — Climate — Predominant wind direction	*	—
A3.5	Geophysical—Climate—Wind velocity	*	—
A4	Geophysical—Topography—(physical feature and slope) (A4.1—A4.2)	—	—
A6.2	Geophysical—Water subsurface—Acquifer location, capacity, depth (A6.2.1, A6 2.1.1—A6.2.1.3)	*	*
C3.4	Vital Statistics—number of marriages	—	*
C4.	Distt. of household by size (no. and population)	—	*
C5	Migration (by place of last residence, birth, duration of residence and employment status) (G5.1—C5.4)	—	*
C6.2	Literacy—Students (P.M.F) enrolment by age groups.	—	*
C6.3	Literacy, Enrolment in Vocational Institutions	—	*
E1	Employment status and structure—workers by sex and broad age groups.	—	*
E4	No. of workers and units (Regd., unregd., household) by two digit NIC classification.	*	—
E5	Persons engaged in petty trades and jobs not elsewhere classified.	*	*
F	Household Income and Asstts. (by specific income groups, type & value of assets and consumption groups) (F1—F3)	*	*
G1 2	Infrastructure investments—housing—staff and public (G1.2.1—G1.2.2)	*	—
G1.3	Infrastructure investments—Slum improvement	*	—
G1.4	Infrastructure investments—squatter resettlement	—	—
G1.9	Infrastructure investments—Electricity	*	—
H2	Banking—Loans advanced by broad categories including EWS	—	*
J	Institutional arrangements for specific development functions.	*	*
L1.2	Landuse and pattern of development—land under private ownership	—	*
L2.3.2	Landuse—industrial—unorganised industries.	—	*
L3.3	Landuse and pattern of development—Persons per room.	*	*

(1)	(2)	(3)	(4)
L4	Norms/standards followed, if any, for allocation of land for specific purposes (L4.1—L4.5).	—	*
L5.5	Public acquisition, development and disposal of land, if any—extent of land made available to EWS with details of location.	—	*
M3	Housing Stock and Facilities—Household by type of accommodation facility (M3.1—M3.11)	—	*
M3.10	Housing stock and facilities—Household by type of accommodation facility—Household living on exposed sites.	*	*
M4	Constructions costs as per PWD/CPWD norms	—	*
M7	Water supply—current water rate schedule by use.	—	*
O3	Sewerage—Length of Trunk Sewers.	—	*
O4	Sewerage—Length of Branch Sewers.	—	*
Q2.7	Transportation—local bus service—Bus rate structure.	—	*
S2	Medical and Health Services—No. of patients originating from areas beyond city limits.	—	*
S7	Medical and health services—other health facilities not elsewhere classified (specify by agency).	—	*

* Denotes the attributes 'not covered'.

— Denotes the attributes 'covered'.

Annexure 7**DATA GAP 3**

<i>Variable Code</i>	<i>Name of Variables</i>	<i>Remarks</i>
C-2	Age and sex distribution	Director of Census operation is the agency to supply information. But available publication is for 1971 census only. For 1981 no data is available.
C-5	Distribution of household by size.	
C-6	Migration	Director of Census collects data but publishes at district and metropolitan cities only.
E-1	Workers by sex and broad age group.	Director of Census has not published for 1981 census.
F-2	Distribution of household by type and values of assets.	Supply Officer, Chengalpattu has the information. But this is made only for making ration cards so not very reliable.
G.	Public investments	Investments were made four decades back. Now only current maintenance on investment is available.
G5	Building	
G16	Roads and Bridges	
G18	Sewerage and drainage	
G19	Electricity	
G1.13	Telephones	Two agencies, Municipality and Directorate of Town and Country Planning have this information. Municipality maintains property, register from which land use data available but not updated for a long time say twenty years. Directorate has this information for preparation of its Master Plan in 1965. Now recently it was updated only in 1984. So periodical information not available,
L2	Land use	
M1	No. of houses with break-up by structural conditions	Directorate of Town and Country Planning has not updated it since its collection in 1965.

Geo-Referencing in Urban Information System

M.P. RAVINDRA

THE AVAILABILITY of micro-processor based computer systems at a low cost has contributed substantially to the phenomenal growth in the use of computers in areas which were considered outside the scope of computerisation.

In the advanced countries, both government and private bodies initiated studies to look into the feasibility of using computers in Planning. This, however, was confined mostly to economic planning based on well-known Statistical and Operations Research techniques.

Around the year 1963, for the first time, the Canadian government conducted the feasibility study to consider the possibility of using computers in spatial analysis problems. Today, after 22 years of persistent efforts, this Information System referred to as Canada Geographic Information System has attained a level of stabilisation which has made it possible to get an extensive variety of interactive and hard copy graphic outputs enabling the government in the evaluation of land, land use monitoring, natural resource planning, wild-life habitat conservation and siting of civic facilities such as schools, hospitals and such other multifarious applications.

The Government of India, having recognised the relevance of such Information Systems, initiated a study in 1973 to establish framework for implementing such a Geographic Information System. A continuous effort has since been made to provide for a data collection machinery which integrates with the existing administrative procedures so that updating of the data-base is ensured.

Fundamental to the creation of such a data-base would be deciding upon different methods of Geo-coding/Geo-referencing any given information. One understands by Geo-referencing nothing more than the referencing of any specific human activity or natural event with its geographic locations. For example—IIPA is located at the intersection of Yamuna Bridge and Ring Road in New Delhi which is a kind of geo-reference. The same can be identified on the map of Delhi by assigning Latitude and Longitude on which IIPA is located. It

could also be geo-referenced by the Plot number in the NDMC/MCD records.

The above example makes it clear that there are different ways of referencing a given road, a building or a mountain on the surface of a given geographic area.

In this paper, we have tried to elaborate the various methods of Geo-referencing that are popular world over and attempted to specify the context in which one could choose amongst these methods of Geo-referencing depending on the need. One underlying factor that has to be recognised is, like in any other computer application, the end use requirements dictates the methodology to be selected in implementing the system. The availability of the right type of Hardware and Software as also the availability of data in suitable form could be a limiting factor. This aspect has also been highlighted.

DATA STRUCTURE FOR GIS

Before getting into the complexities of the methods of Geo-coding, it is better to define what the data structure would be in a GIS. There are 2 ways of structuring the data in an Information System. They are List and Tree Structures. GIS does not, however, allow for a direct use of these structures. In case of GIS, it would have been very simple if we were in a position to map every point on the surface of the earth on to a file in terms of its 3 dimensional coordinates (with reference to a chosen system) with all the attribute values marked against this coordinate. This, however, is totally impracticable. Such a limitation would force us to select other ways of structuring the data to optimise the storage and retrieval in a practical way. The structure that is selected should essentially support spatial analysis, which happens to be the primary objective of GIS.

In recent years, much research has been going on and more ideas are coming into existence with the availability of sophisticated input and output devices. This is especially true with very advanced graphic tools.

The data structures have to satisfy the following criteria which are the most important amongst the other factors :

- | | |
|---------------------------|--|
| (a) the measurement scale | is it nominal, ordinal, interval or ratio |
| (b) variable type | continuous or discrete |
| (c) transiency | is it 'stock' or 'activity' at a place (see below) |
| (d) spatial relevance | is it for 'within' or 'between' places |

(e) spatial cover	sampled, or population
(f) temporal cover	how frequent are the time splices
(g) space-or-time-constrained	could any sample have been selected
(h) resolution	the number of fundamental spatial units making up the spatial data individual
(i) reliability	what confidence limits can be ascribed to the data
(j) purpose	single or multi-purpose
(k) usability	directly as information or only inferentially (surrogate data)
(l) method of collection	automated or manual
(m) confidentiality	!
(n) symbolic representation	how are the real-world or conceptual phenomena stored as lines, area, points? (note that these are largely interchangeable and are, in part, no more than different forms of notation, analogous to different mathematical symbols).

It is to be observed that so far nothing has been said about urban or any other GIS. This is so because Urban Information System is only a specific case of GIS. It is only in selecting the relevant type of Geo-referencing Schemes in the building up of URBIS, that there is a distinction between the general GIS and the URBIS.

It is to be noted that care should be taken while selecting any one Scheme that the final output conforms to the existing administrative boundaries so that future updates are guaranteed. Different variables/features will require different data structures. Therefore, provision should exist within the system to bring these on a common platform as far as the end user is concerned.

The method of Geo-referencing used and the data structure will crucially depend on the end use to which the GIS thus generated would be put to. In the next Section, a treatment of the various methods of spatial referencing is given.

METHODS OF SPATIAL REFERENCING

Before one starts a discussion on the various referencing schemes known, it may be useful to identify the different sources of inputs that will feed the development of the GIS. There are three sources of inputs

that a GIS has to accept. They are :

1. Alphanumeric information on bibliographic data such as Census, Crop Reports, Field Notes, historical and Meteorological data facilities, infrastructure, etc.
2. Graphic information in the form of photographs and maps.
3. Remote sensed data available on commuter compatible tapes obtained from the LANDSAT, INTELSAT, etc. INSAT also could be a major source of input in both creation and updation of GIS.

The following Table gives an idea of the three types of inputs and the modes/techniques used to convert them into computer readable form:

<i>Type of Data</i>	<i>Technology Used</i>
1. Alphanumeric and such other information existing in various records	Conventional data entry devices—Card Punch, key to tape or multi-terminal key to diskette devices. However, it would be required to geographically identify the data with the basic spatial unit used with rest of the system if it is to be meaningful.
2. Photographs and maps	(a) Co-ordinate Digitizer (Semi-Automatic) (b) Stereo-photogrammetric model (c) Optical Scanners (automatic)—raster scanners. In all the above cases, the maps or photographs are to be prepared before the process of digitization begins.
3. Remote Sensing (Terrain Data)	Available on CCT's. Requires suitable corrections and interpretation before being put on the geo-base.

APPROACHES IN SPATIAL REFERENCING

There have been two approaches in the Geo-referencing techniques. The first of this is the Implicit Referencing and the other being the Explicit Referencing.

In the Implicit Referencing, even though there will be a way of

'spatially' identifying a given geographic entity, this method does not support any spatial analysis. By this, we mean we cannot ask questions like : (i) how many commercial establishments are engaged in selling foodgrains around Connaught Place within a radius of 3 kms. or (ii) Number of industrial units around Anand Parbat within a radius of 1 km, etc. Hence, in this kind of data structure which is typical to the presently available information systems in the government, we cannot answer such questions in a comfortable manner. Such situations have led to the development of Information Systems with explicit spatial reference.

The first of the Information Systems which made an attempt to introduce Explicit Referencing were Systems like SACS, ADMATCH, GIMMS, etc., of USA by the Bureau of Census.

In rest of the paper, we are going to discuss only the Explicit Spatial Referencing Schemes. While doing this, we define 3 data types which are sufficient to describe a geographic entity. They are Points, Lines and Areas.

Typical examples of the above data types are dwellings, schools, hospitals, etc., in case of Point Entities. Roads, Rivers, Railway Lines, etc., approximated by lines, networks; Forest Areas, Water Boards, Agricultural Lands are typical examples of Polygon or area type of Geographic entities.

GEO-REFERENCING OF POINT ENTITIES

The starting point of recording information in a Geo-coded manner would be to obtain base maps or drawings with the various geographic entities for a given geographic area (an extent) on a composite map or individual maps containing different details (Administrative Map of a District, Agricultural Map, Industrial Map, Topographic Map, etc., are examples of the Geographic entities). Thereafter, depending on the feature or detail being computerised, methodology for Geo-referencing is selected.

While recording information about the surface variables which are approximated as points, we have three approaches, viz. :

- (a) Referencing a building independent of the type of building by the address it bears in the Municipal records. The limitation of such a procedure has also been pointed out. The other 2 Methods adopted happen to be Coordinate Referencing and Segment Referencing.
- (b) In Coordinate Referencing, the geographic entity is viewed as a point though the entity may have a definite area or volume in reality. There are, however, some conventions to position

the point relative to the physical entity itself. For instance, it might be chosen to be the visual centre or the South West corner of the entity or the Centroid or anything else which is appropriate to the variable of interest.

Figures 1-3 demonstrate the difference between the above mentioned techniques in point referencing.

Generally, the File containing the locational reference codes along with the dwelling codes (Implicit Reference) is an integral part of information system and is called a Master Filer or a Gazetteer. Care should be taken in the preparation of such filing to eliminate any possible errors.

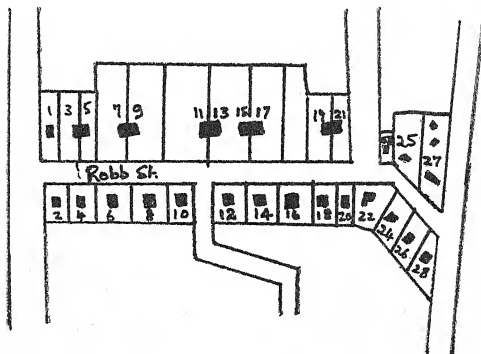
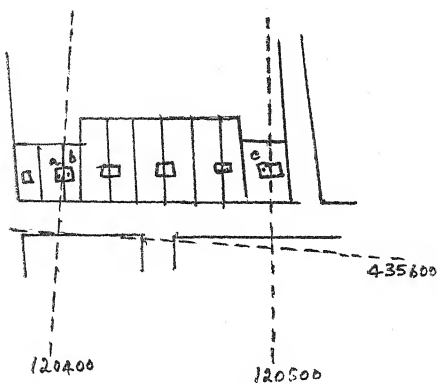


FIG. 1 MAP WITH POSTAL ADDRESSES

POINT REFERENCING

In the capture of coordinate reference for point location, some automatic devices such as Digitisers which have a template/platter on which pre-determined grid structure is drawn and superimposed on the areas of interest, the Grid Cell is numbered with reference to the origin of the platter and a coordinate value is assigned to the geographic entity or entities which have a non-zero value. Needless to say, the time required to computerise such data for large physical areas could be enormous. However, any organisation intending to imple-



	1 Metre	10 Metres	100 Metres
a	120400 435612	12040 43561	1204 4356
b	120408 435613	12040 43561	1204 4356
c	120491 435675	12049 43562	1204 4356

2 UNIQUENESS DETERMINED BY LEVELS OF RESOLUTION

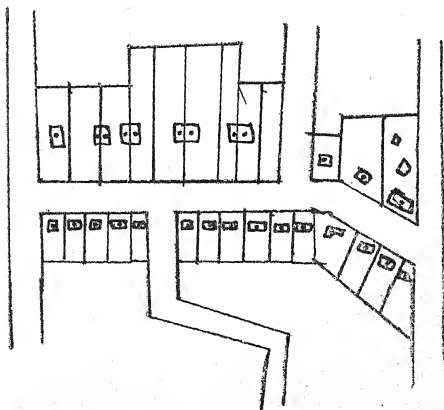


FIG. 3 DWELLINGS WITH VISUAL CENTRES ADDED

ment a GIS should be prepared for such time frames as may be required and make available sufficient manpower with reasonable training provided. Considerable effort goes into the preparation of base maps before the work of digitisation can begin. The experience world over has shown that it is an inevitable step in the development of GISs. The Author has had the benefit of visiting and studying many of the functioning GIS installations in the world across many countries and would like to record that it would be a very worthwhile investment for the government to undertake such projects. Many of the references listed in the end would prove this point.

SEGMENT REFERENCING

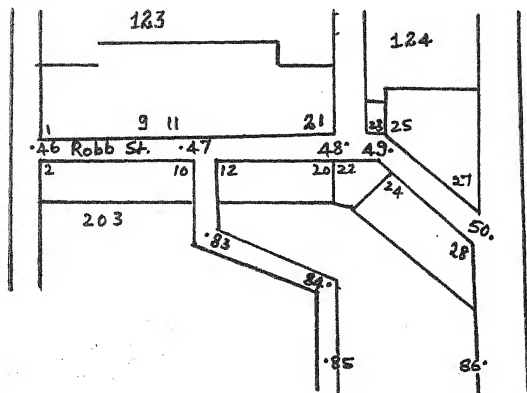
In the Segment Referencing Scheme, one makes use of Network structure built into the topology of the map area under consideration for Geo-coding. The GBF/DIME (Geographic Base File/Dual Independent Map Encoding) System developed by Bureau of Census, USA, adopts this method. It may be remarked here that this methodology is *more suitable in Urban Information Systems*. This particular System does not, however, support the recording of certain types of information even in the context of Urban Information System.

The GBF/DIME demands the preparation of the base maps (Fig. 4) with all the Road Networks, Transmission Networks, Natural Boundaries, Survey Numbers, etc., marked explicitly on the maps. Thereafter, the data has to be prepared manually into coding sheets with definite data structure indicated on them (Fig. 5). This is also very time consuming exercise and requires checking back with the administrative records for accuracy.

AREA REFERENCING

In the Geo-coding of features like revenue districts, forest areas, etc., the spatial extents being large, it would be incorrect to approximate them by points. Under these circumstances, it is necessary to code the actual boundaries of such areas. This happens to be a specific case of line digitisation where the starting point and the end point are concurrent. Specialised packages to support such a digitisation process (Geo-coding process) are available in the Market. These are very expensive. One example is PIOS (Polygon Information Overlay System).

As in the case of point referencing, there are three methods available for Geo-coding aerial information: (a) Bit Maps, (b) Skeletons, and (c) Boundary Strings. In what follows, we explain the difference in concepts between these three methods.



name 'from' 'node' to 'node' address feature

	no.	Cr.	no.	Cr.	ll	hl	lr	hr	l	r
Robb St.	46	120378 435601	47	120443 435607	1	9	2	10	123	203
Robb St.	47	120443 435607	48	120513 435613	11	21	12	20	123	204
Robb St.	48	120513 435613	49	120525 435614	23		22		124	204
Robb St.	49	120525 435614	50	120578 435584	25	27	24	28	124	204

FIG. 4 CODING OF THE MAP PRIOR TO THE CREATION OF A SEGMENT REFERENCED FILE AND THE STRUCTURE OF A DIME FILE RESULTING FROM IT

(a) Bit Maps,

In this technique of Geo-coding, the Map area with the polygons clearly written out is mounted on a light tablet on a slanting plain. A Template with a uniform grid structure (Fig. 6) is super imposed on this map area. The actual recording of the data falling into a Cell could be done manually or automatically as per a previously decided classification scheme. While the manual method has its own advantages, they are

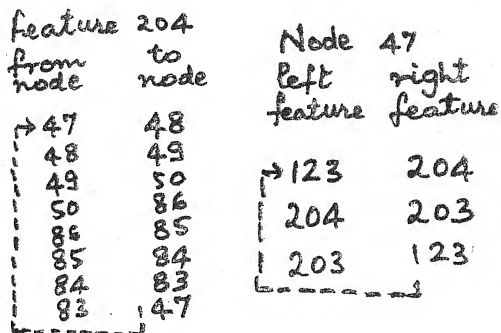


FIG. 5 TESTS FOR CLOSURE ON THE CHAINED SEGMENTS AND FEATURES

very slow and expensive. They are also error prone. There are several automatic devices available in the market place today for doing this work very effectively, even though it is capital intensive.

As the case studies elsewhere in the world have shown, universities seem to be the best place for undertaking Geo-coding of desired areas using Bit Map techniques. This not only helps in getting the job done but also helps in generation of trained manpower required in future.

One specific disadvantage of this method of data collection is that the data storage requirements increase as the square of number of grids chosen along the Scan Line (Scan Line is a horizontal line drawn from right to left of the base map being digitised).

Some of the advantages and disadvantages of this technique are indicated in Fig. 3.

Advantages

1. As GS's have approximately equal sizes, comparison among GS's is easy (GS ; Grid Square)
2. As the GS remains unchanged, being not subject to the changes in the boundaries of administrative divisions, terrain and landmarks time series analysis will be simplified.
3. The statistics required for any given area may be obtained by aggregating the concerned statistics of the GS's contained in it.

all contained
bits coded

all boundary
bits coded

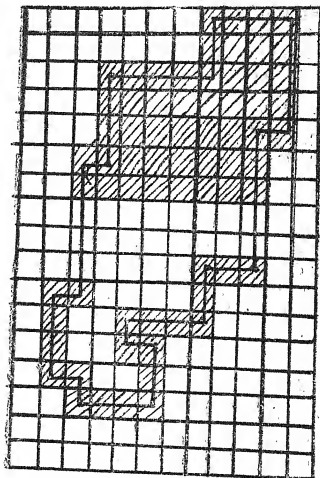


FIG. 6 BIT MAP REPRESENTATIONS OF A POLYGON WITH O/I SHADING

4. As the form of the areas is uniform, it is simple to identify their locations and the data related to land configurations and distances may be easily obtained.
5. Mass data processing by electronic processors is possible. In particular, mapping by processors is facilitated.

Disadvantages

1. Original data may not be generally collected on GS basis. Thus the compilation of statistics on GS basis requires readjustment of the data collected for irregularly shaped real units of unequal sizes. This usually involves considerable amount of labour. Further, this readjustment process may introduce certain errors.
2. As the GS's are not demarcated on the basis of actual terrain and/or observable objects, the use of GS's as surveying units may be difficult.
3. For the compilation of statistics for small area included in say, a single municipal division, the size of GS's may have to be reduced

down to 250 square meters or 100 square meters, if statistics for the combined GS's are to be good approximations to the relevant statistics of the particular area for which information is required. As a general guideline, we could use the following benchmarks in selecting the points of mesh:

1. Spatial extent of the map,
2. Scale of the map, and
3. Geographic projection to be used (LAMBERT's Canonical Projection or Transverse Mercator Projection)

It is also necessary to provide for some degree of flexibility to make adjustments with the socio-economic data that gets collected from an entirely different process. This is essential till one has established proper guidelines for Geo-coding conventions in the usual surveys.

Last but not the least, one should ensure the availability of proper I/O devices and data handling software necessary for such an application.

(b) *Skeleton Maps*

In this method, for any given point (X_i, y_i) in a plane, it is possible to define a Region about this point with a boundary given by the locus (x_j, y_j) where $(x_i - x_j) \leq r$ and $(y_i - y_j) \leq r$ where 'r' is the size scalar of the metric. This metric defines a square with diagonal = and the central point as (x_i, y_i) . A neighbourhood is defined by specifying its centre and radius. The definition of the polygon in such a scheme is given by the string of triads (x_i, y_i, r_i) . Fig. 7 illustrates this methodology.

Even though automatic ways of deriving a skeleton from a polygon coded as a closed string of boundary segments, this method seems to be rather cumbersome to use. One specific advantage of this method is that it supports spatial searches, thematic mapping and such other set-theoretic composites of a given set of regions. The main disadvantage happens to be the initial effort involved in Geo-coding.

(c) *Boundary Strings*

This alternative for coding areas is by co-ordinate referencing of the vertices of the polygon. For processing purposes, the polygon, vertices should be digitised in a consistent (e.g., clockwise) direction and the polygon should be closed by ensuring that the first and last digit pairs are co-incident. It is certain that such digital co-ordinates resulting from Digitiser output, it is likely that some filtering would be necessary to remove co-incident points and to smooth the boundary. This method also, as in the case of Bit Map technique, would result in slightly distorted maps on output.

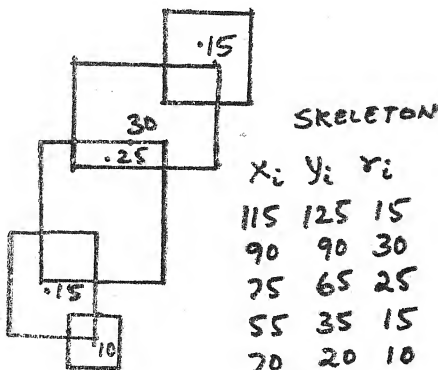


FIG. 7 POLYGON REPRESENTED AND DEFINED IN SKELETON FORM

Storage requirements would be a main factor to be considered in this method also. Many extensions to this Project are available in literature and depending on the requirements, one could select the right project.

It is perhaps worth noting that the Industry has many advanced hardware designs to offer both for data inputting and outputting polygons stored on the system. Some of the important references have been listed at the end of the paper for reference.

In the Indian context, there are some more difficulties. This happens to be the way land is managed. Invariably, the boundaries of any geographic area is not uniform resulting in unforeseen adjustments which may clash with administrative records. Some degree of rationalisation might have to be considered or approximations accepted while using these techniques.

NETWORKS

Typical examples of Networks especially in an Urban environment happen to be Road Networks, Transmission Networks, Telephones, Water Supply and Sewerage Networks so on and so forth. Though this data can also be digitised or Geo-coded using any one of the

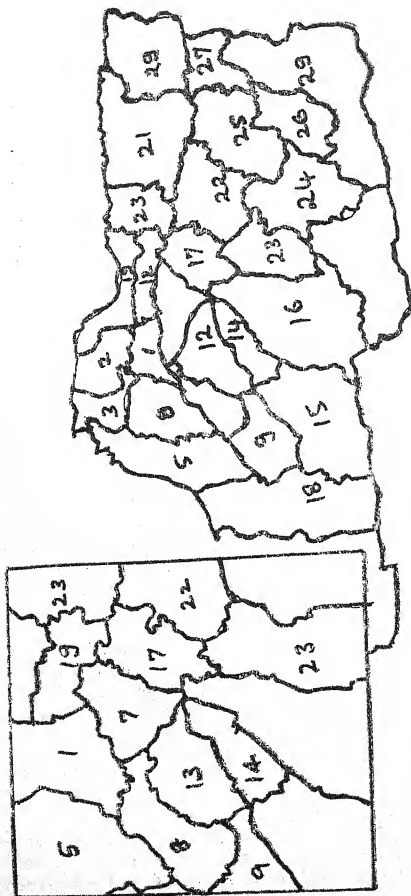
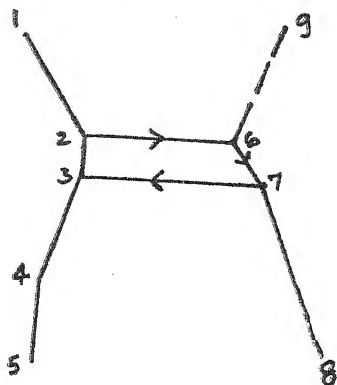


Fig. 8 POLYGON OUTLINE FILE DRAWN ON A DIGITAL PLOTTER WITH WINDOWING AND CHANGE OF SCALE

techniques mentioned in the preceding sections, there are better ways of spatially referencing networks.



Node	X	Y	to	nodes
1	20	120	2	
2	50	90	1	6
3	50	70	2	4
4	40	40	3	5
5	40	10	4	
6	110	100	7	9
7	130	80	3	8
8	150	40	7	
9	120	140	6	

FIG. 9 NODE-BASED NETWORK FILE

Essentially, Networks are composed of 'Links' which meet each other at 'Nodes'. There are 2 ways of coding Network data using the very character of the network. The method to be selected will depend on the use to which data will be put to at a later point of time.

If the end user wants to give precedence to Node over and above the Links, then the coding proceeds by indicating the Node number, the cartesian coordinates and the number of the Node/s to which it is connected. Fig. 9 gives a picture of how this is done. By the very

structure that is used in this method of coding, the length of each record is varying.

If, on the other hand, the Link plays a major role in utilisation of the data-base thus created, each Link is given an origin and destination Node number and values for Link attributes—name for the Link, length of the Link and direction, etc. (as in the case of DIME Files). Fig. 10 indicates the record structure clearly.

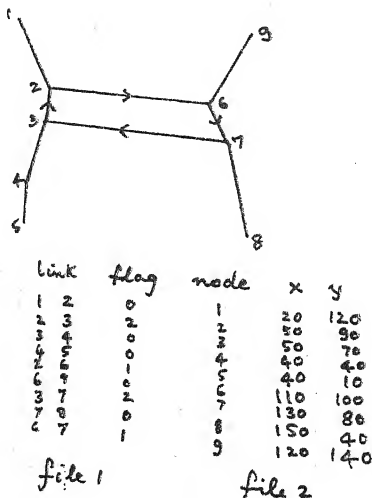


FIG. 10 LINK-BASED NETWORK FILE WITH
NODE LOCATIONS FACTORED OUT

This methodology of Geo-coding also has its inherent difficulties especially in situation where such network maps are not available, or there are very many intersections and Links, etc.

All the above methods have been evolved with considerable amount of effort over an elongated period of 10 to 15 years or more and is more suitable for such Countries where land management and the policies governing the land are much simpler. Even in those Countries

where very rapid advance has been made in the use of such systems, keeping the systems up-to-date is providing to be quite a difficult task. The involvement of respective Governments is becoming a great necessity.

MANAGEMENT CONSIDERATIONS IN THE ESTABLISHMENT OF GIS

This topic needs a separate treatment and would be covered by the Author at a later point of time in a separate paper. However, for sake of completeness, a few major issues are discussed here.

Historically, our country has not indulged in any systematised land planning or land management in the same perspective as Countries of the West. This has resulted in such a pattern of land development and utilisation which are of all sizes and shapes even in contiguous tracts of land, both in urban areas and more so in rural areas. Irrespective of the reasons behind such a development, it poses enormous problems in the land management today. All the modern techniques have been evolved by Western Countries, where, by and large land parcels have a regular size and shape. The methodologies, therefore, have yielded very good results. The rugged shapes and irregular sizes are more an exception than a rule, thus making them amenable to automated methods of Geo-coding.

This will not be possible in our country and hence requires the involvement of government and the industries alongwith Research Institutions to collaborate and evolve effective techniques to develop suitable methods of Geo-coding and related Hardware cum Software. It should be emphasised, however, that in spite of the difficulties that seem to be in our path, use of such methodologies is a must if our planning exercises are to be more relevant and effective.

REQUIREMENTS

If the concepts highlighted above are acceptable and a conscious decision is taken to develop and maintain such useful systems, then the concerned organisations should ensure that the atmosphere is created for such a development. There are many fundamental requirements to be satisfied in order to succeed in these efforts.

BASE MAPS

Having decided on the end uses which this system has to service, relevant base maps should be prepared which are possibly the latest available. Suitable scales, 1 : 20000 in respect of URBIS, have to be

selected depending on the detail to be Geo-coded and digitised. A map library would have to be established from where such maps can be drawn and used. This Centre or Centres should have trained people in various methods of Geo-coding explained above and facilities for Geo-coding and digitisation which several organisations could share.

Arrangements should be made to keep the data thus collected, upto-date, in the absence of which the data-base will become useless over a period of time.

Another very important aspect that should be provided, is the flexibility of moving from one type of data-base file to another and be in a position to correct or update data, overlay different features and output them in a graphic form either for viewing purposes or for decision making purposes. This calls for a very large software effort and manpower training.

LAND ACTS

It should be emphasised here that no matter how sophisticated the techniques that we may evolve in managing the land either through use of computers or otherwise, until and unless the existing Acts are suitably modified and some degree of rationalisation is brought about, it would be very difficult to introduce new technologies into the urban planning exercise. As a matter of fact, this happens to be an area of research world wide.

IMPLICATIONS ON GENERAL/SPECIFIC SURVEYS

One may put together a lot of resource and be able to create a large data-base as a one time exercise with a few organisations taking all the responsibility. This alone will not guarantee the survival of the system.

A large volume of precious data is being collected at this point of time through very expensive and time consuming surveys by national bodies such as Registrar General Census of India, Central Statistical Organisation, National Sample Survey Organisation, Department of Statistics so on and so forth. All of them have mutually accepted norms in collecting the data and analysing them for presentation to planning bodies. Invariably, this data has only economic bearing and will not allow any spatial analysis *per se*. Time and again the government has found that a decision to locate a particular facility in a given location has not yielded the desired result in containing the population growth or migration. This can be directly ascribed to the fact that it is not just enough to do economic planning but should be correlated with spatial planning also. Some of the studies conducted

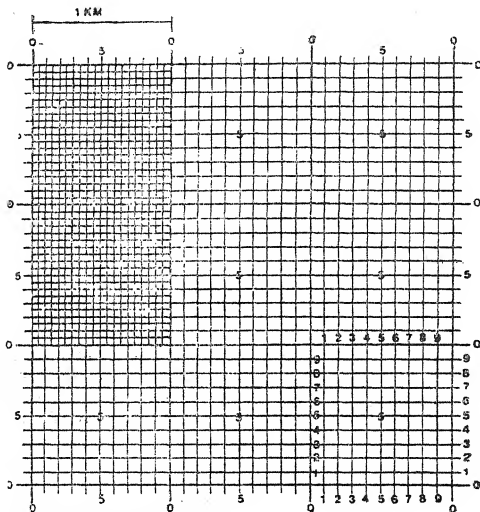
by Prof. Patel of IIM, Ahmedabad, bears out this argument, not to mention the innumerable many case studies from abroad.

Foregone paragraph establishes very clearly that suitable guidelines should be drawn up and followed by the various organisations engaged in collecting statistical data which are Geo-coded through the respective administrative channels. It also demands systematisation of the way in which administrative records are maintained across the levels of administration. The industry will also be required to give suitable Software and Hardware products at reasonable prices to suit Indian environment.

CONCLUSION

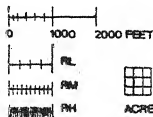
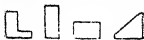
All that has been said above clearly makes a case for some serious thinking on the part of the government, industry and the research institutions to come together and work out a plan for introducing advanced technology into the land use management and planning immediately. This is so because there is a general feeling amongst the planning community that there is a lack of data in a suitable form which does not enable them in taking proper decisions as also in monitoring the implementation of decisions taken. The environmental and socio-economic implications and the benefits that will accrue to the society in general will have a far reaching effect on the quality of life which is the main concern of every Planner and Politician of a country. □

Digitising grid designed for manual use with 1:124,000 ratio maps. Smallest cell is 1/4 of a hectare. Intermediate cell equals one hectare. Large cell equals one kilometer.

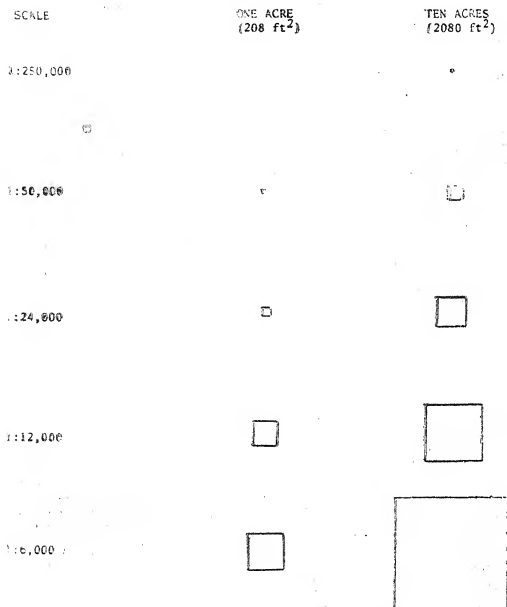


SCALE 1:24,000 UTM GRID
1" = 2,000'

2.5 HECTARE AREAS:



CHANGING OF MAP SCALES



Comparisons of area required for standard units of measure (1 acre, 10 acres) for five commonly used map scales. Note that when a map scale is doubled, the area and cost of production is quadrupled.

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